

Agric  
HD  
319  
.M3  
M78  
c.1

MURCHIE - UNUSED LANDS OF MANITOBA



THE LIBRARY RESERVES THE RIGHT  
TO RECALL THIS BOOK AFTER 7 DAYS



Agrie

HD

319

.M3

M78

C.1

549309





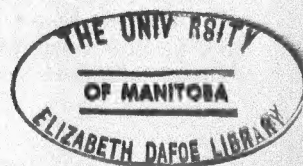


Agric  
HD  
319  
M3  
M78  
C.1

# UNUSED LANDS *of* MANITOBA

*Report of Survey Conducted  
by  
R. W. Murchie  
and  
H. C. Grant*

1926 v



549309







Winnipeg, January 26th, 1927.

Hon. Albert Prefontaine,  
Minister of Agriculture and Immigration,  
Parliament Buildings,  
Winnipeg, Man.

Sir:—

The undersigned have the honor to submit herewith a Report of the Survey of Unused Land within the Province of Manitoba, conducted in accordance with the instructions received following Premier Bracken's letter, dated May 15th, 1926.

Respectfully submitted,

ROBERT W. MURCHIE,  
H. C. GRANT.

---

Province of Manitoba

Office of the Premier,  
Winnipeg, 15th May, 1926.

Prof. R. W. Murchie,  
Dept. of Economics and Sociology,  
Manitoba Agricultural College,  
City.

Dear Sir:—

The Provincial Government is desirous of having prepared an inventory of the unused lands within the province, more particularly those within the surveyed and organized parts of the province, with a view to developing a more effective programme for the settling of such of these lands as are suitable for agriculture.

We have arranged to have this survey conducted under the direction of your Department, with the understanding that Professor Grant will associate himself with you in this work.

In connection with this study it is our desire that all pertinent information now available in different places should first be gathered together and that such further inquiries should be made as are necessary to show the acreage of unused lands in the surveyed portions of the province, the general suitability of the land for farming purposes, the location of the different parcels, the types of farming best suited to the different districts where these unused lands are found, and the economic and social conditions obtaining in the respective areas.

The Government has in mind also the formation of an agricultural development programme, looking toward the more economical production and more efficient marketing of farm products, as well as the further development of rural community life. We should therefore request also that you prepare detailed recommendations, looking toward the working out of such a programme, such recommendations to be based upon the experience of other provinces or states in the Union and modified to suit the conditions found in Manitoba.

For the purpose of carrying out this survey which we are now entrusting to you, an appropriation has been provided in the Department of Agriculture, to cover the cost of the work and the publication of a report based thereon. For further detailed instructions you should consult with the Minister and Deputy Minister of Agriculture, and I shall be pleased also to be of any assistance possible as your work progresses.

Yours very truly,

(Signed) JOHN BRACKEN.



## Acknowledgments

Acknowledgment for valuable help in the work of the survey and in the preparation of this report is gratefully given to Assistant Professor H. C. Grant, of the Department of Rural Economics at Manitoba Agricultural College, who acted in the capacity of assistant director and shared the responsibility of organization, field work and final editing.

To Assistant Professor J. H. Ellis, Mr. C. H. Hammar and Dr. L. A. Munroe, who were responsible for the greater part of the "soils" work; to Assistant Professor C. R. Hopper, Manitoba Agricultural College, Mr. C. S. Prodan, of the Dairy Branch of the Provincial Department of Agriculture; Brigadier-General Hugh M. Dyer, Mr. W. M. Stewart and others who co-operated in the field work, and to Professor T. J. Harrison of the Field Husbandry Department, Manitoba Agricultural College, for preparing the tables showing the rotations and varieties suitable to the various agricultural zones.

A special debt of gratitude is due to Dean McKillican, of the Agricultural College, for valuable assistance in the study of several difficult technical problems and for undertaking the arduous task of reading and revising the manuscript of the report. All his criticisms have been carefully studied, and his suggestions have been incorporated in the text.

Acknowledgments are also made to municipal officials, to various members of departments of the Provincial and Dominion Governments, especially to the Manitoba Branch of the Dominion Land Settlement Board, and to the officers of several colonization bodies for aid in the collection of the data included in the report.

R. W. Murchie.



# Table of Contents

	PAGE
(PART ONE)	
LETTER OF COMMISSION . . . . .	3
ACKNOWLEDGMENTS . . . . .	4
INTRODUCTION . . . . .	7
Method of Survey	
GENERAL INVENTORY OF UNUSED LANDS . . . . .	10
Classification of Unused Lands	
Immediate Settlement Opportunities	
PHYSICAL FACTORS IN LAND SETTLEMENT . . . . .	20
Topography	
Climate	
Soil	
ECONOMIC FACTORS IN LAND SETTLEMENT . . . . .	32
Agricultural Prices	
Cost of Production	
Marketing of Farm Products	
Transportation	
Agricultural Credit	
SOCIAL FACTORS IN LAND SETTLEMENT . . . . .	46
Early Settlement and Growth	
Shifting	
National Types	
Social Organization	
LAND SETTLEMENT SCHEMES . . . . .	60
RECOMMENDATIONS . . . . .	67
APPENDIX I . . . . .	69
APPENDIX II . . . . .	71
(PART TWO)	
DISTRICT 1—Southeastern Manitoba . . . . .	74
DISTRICT 2—Red River Valley . . . . .	80
DISTRICT 3—Pembina Hills Country . . . . .	91
DISTRICT 4—Southwestern Manitoba . . . . .	95
DISTRICT 5—Brandon District . . . . .	99
DISTRICT 6—Carberry District . . . . .	103
DISTRICT 7—Northern Red River Valley . . . . .	106
DISTRICT 8—Brokenhead-Whitemouth District . . . . .	108
DISTRICT 9—Mid-Lake Area . . . . .	116
✕DISTRICT 10—West of Lake Manitoba . . . . .	129
DISTRICT 11—Southern Slope of Riding Mountain . . . . .	163
✕DISTRICT 12—Dauphin District . . . . .	179
✕DISTRICT 13—Swan River Valley . . . . .	185



## LIST OF MAPS AND CHARTS

MAP.	PAGE
No. 1—Unused Land in Manitoba . . . . .	facing 10
No. 2—Heights Above Sea Level . . . . .	“ 20
No. 3—Natural Drainage Courses . . . . .	“ 22
No. 4—Drainage Districts . . . . .	“ 22
No. 5—Distribution of Total Precipitation . . . . .	23
No. 6—Last Spring Frost Zones . . . . .	24
No. 7—First Fall Frost Zones . . . . .	25
No. 8—Average Length of Growing Season . . . . .	26
No. 9—Agricultural Zones (Colored) . . . . .	facing 28
No. 10—Acreage Cultivated and Proportion in Each Crop by Municipalities (Colored) . . . . .	facing 38
No. 11—Population Shifting, 1911-16 . . . . .	48
No. 12—Population Shifting, 1916-21 . . . . .	49
No. 13—Population Shifting, 1921-26 . . . . .	50
No. 14—Distribution of Population . . . . .	53
No. 15—Distribution of National Types (Colored) . . . . .	facing 52
No. 16—Manitoba Schools . . . . .	“ 54
No. 17—Resident Clergy . . . . .	54
No. 18—Medical Services . . . . .	57
No. 19—Rural Organizations . . . . .	58
No. 20—District Boundaries . . . . .	73
CHART	
No. 1—Butter Production in Manitoba . . . . .	36
No. 2—Utilization of Improved Land . . . . .	37
No. 3—Growth of Population . . . . .	46



# Part I.

## GENERAL REPORT

### Introduction

In proceeding to make the inventory of unused land in the Province of Manitoba, and to classify it for settlement purposes, the first hypothesis was that land which has been opened for settlement for a considerable period and had been passed over by succeeding generations of land seekers has been so passed over because of some apparent defects, either physical, economic or social. The next hypothesis was that land which had been taken up and had subsequently been abandoned had been so abandoned because of a similar set of factors, physical, economic or social. The third, in classifying the land prior to the formulation of a constructive policy of land settlement, all three sets of factors had to be considered in the determination of the areas to be settled, the type of settlers to be placed therein and the utilization of the land by them.

In the past there has been a considerable amount of good land open for settlement under the Homestead Act, and a considerable amount of good land available for purchase at low prices. Neither the Dominion Government nor the Provincial Government, however, felt the necessity of assisting the settler to choose his land nor was advice given as to the methods of development. The policy was rather to allow the greatest freedom of choice and of method on the assumption that any one who had natural ability for farming, whether experienced or not, would eventually succeed, as indeed the very great majority actually did. In the early days of settlement it was quite true that almost any tract of 160 acres, which an intelligent settler would on inspection select, could be developed into a farm home.

As the best of the land began to be picked over and as the great influx of immigrants at the beginning of this century rushed to take up land, it soon became evident that some of the land on which they settled was decidedly inferior, at least from a grain growing standpoint. It was, nevertheless, true that many of these immigrants had come from countries where much poorer land had been farmed for generations, and the farms they chose seemed to suit them well enough. What they neglected to take account of was the difference in climatic conditions and in economic conditions such as transportation. Land of a quality which could be economically developed under European conditions turned out to be submarginal under Western Canadian conditions. Then arose the necessity for the close examination of the soil characteristics before land was opened for settlement. This has led in recent years to the establishment of a branch of land economics, generally called "Land Classification," and in various countries, notably in the United States, the last decade has seen this work gain considerable support and recognition. The Dominion of Canada Topographical Surveys Branch has since 1918 been carrying on land classification surveys, the chief purpose of which is to assist the intending settler to choose a desirable farm. The land classification, however, carried on by F. H. Peters, the director of that work, is: "The systematic survey or examination of the land in order to obtain complete and authentic information concerning the surface covering, the nature of the soil and the extent of the surface improvements." Already the work done by the Dominion Government includes some 27,000,000 acres of land along the northern edge of the settled parts of Manitoba, Saskatchewan and Alberta.





Examining the Soil

The work done in Manitoba has been chiefly in the Mid-Lake area and in the district west of Lake Winnipegosis by Dr. S. D. Fawcett and Dr. C. S. MacDonald. The information collected by them is available to the public, but the new settler does not know of its existence, and if he did, would have difficulty in obtaining access to it. The definition given above does not meet the three-fold requirements stated in our hypotheses and for that very reason much

of the land settled following the publication of these maps and with full knowledge of the information contained therein has been found to be unsuitable for settlement and has been abandoned.

This experience suggests that economic factors have considerable bearing on land settlement. There should be consideration given: First, to the need for new land to be brought into cultivation; second, the proper use to which that land should be put; and third, the best type of settler to place on it. The Provincial Government, as representative of the people of the province, can no longer afford to adopt the "laissez-faire" policy, because if settlers are allowed to settle on land which under the prevailing agricultural practices will not be productive enough to allow them to support modern social institutions, the Provincial Government generally is called upon to assist in their support. If the assistance is only temporary and districts ultimately become self-supporting, little harm is done, but if the conditions are permanent such government grants carry all the evils of pauperizing doles.

#### *The Method of the Survey*

The investigation reported here was carried on in the following manner: First, municipal authorities were communicated with and asked to supply information regarding the land within the municipality which could be classed as unused, and unused land was defined for them as "any parcel of land which was not in 1926 an integral part of any occupied farm."

Schedule "A," which asked for this information, is included in Appendix No. 1. The municipal authorities co-operated remarkably well and in most cases followed the system outlined for them. As a result of their co-operation and subsequent enquiries made by survey parties the following information was received: That in organized territory there is unused land to the extent of four and one-half million acres. The information concerning lands in unorganized territory was gleaned from various sources, including school district tax rolls, Dominion Government land maps and personal observation by survey parties.

The next step of the survey was to communicate with the owners of the unused land to find their intentions regarding it. Over 3,000 of these owners were communicated with and replies were obtained from 1,244. The information asked for is shown on Schedule "B" which is included in Appendix No. 1.

The third step in the survey was the making of maps of the municipalities and of the province as a whole, showing the location of these unused lands. These maps were used by the field men in their inspection throughout the province.

The fourth step was the inspection of the land for classification purposes. Evidently such a huge task as the inspection of more than nine million acres of



## METHOD OF SURVEY

land could not be thoroughly and completely accomplished in the time at the disposal of the survey party. Two methods of investigation, therefore, were adopted in order to enable a presentation of a general report. First method: In areas where the greater part of the land was reported as unused, soil experts were sent to make investigation and preliminary classification, and to describe the soil types found within the area.



A New Settler's Home

Other investigators were sent to enquire into agricultural, economic and social conditions in these areas. Second method: In areas where unused land occurred in isolated parcels, inspectors were sent to report on the character of the land, especially noting where it differed from neighboring land which was in agricultural use, and if possible to find an explanation why the parcels were unused. The field men were also required to interview representative farmers in the neighborhood of these unused lands, with a view to determining the desirability of these lands for settlement. Schedule "C" on which this information was obtained is included in Appendix 1. In this field work there were engaged three soil experts, five practical agriculturalists with an intimate knowledge of conditions in Manitoba, and two economists and sociologists.

In addition to the inspection of lands noted above, special expeditions were sent into new territory where good agricultural land was reported to exist. An attempt was also made early in the survey to list the tracts of land held by large operators throughout the province, but this was abandoned as impossible in the time at the disposal of the staff. A separate study would require to be made of these tracts.

A fifth step was the consultation with many authorities on colonization and settlement, to find out what had been done by them to assist immigration and to direct settlement. Considerable time was also spent in compiling information already existing regarding economic conditions and social institutions throughout the province.

The field work began early in June and continued to the middle of October, although weather conditions during the last six weeks made travelling in the country districts well nigh impossible. Since the conclusion of field work the compilation of the data gathered and the preparation of this short summary report has occupied the staff.



# General Inventory of Unused Lands

"We have room for farmers from many lands, assuming that we act intelligently in our choice and properly distribute those who come."

—John Lee Coulter.

IN presenting a summary of the unused agricultural land situation in Manitoba as reported by the municipal officials and field men of the survey, the best introduction would seem to be the presentation of Map No. 1, entitled, "Unused Lands in Manitoba, 1926," and Table No. 1, which gives in detail by municipalities the ownership of the various parcels of unused land. These two give in a nutshell the main features of the inventory desired by the Government. The map has been carefully prepared from schedules filled out by the municipal clerks and checked to a large extent by the reports of the field men and supplemented by information gleaned from the latest published maps of the Dominion Government Department of the Interior, Provincial Government Lands Department, Hudson's Bay Company Lands Department and from the tax rolls of school districts in unorganized territory. Unfortunately, many of these last were out of date, and it was difficult in such areas for the field men to determine whether a parcel of land was abandoned or only temporarily vacated by the owner.

It will be seen by reference to the map that a line drawn from the northern limit of Swan River Municipality to a point on the International Boundary about 20 miles east of Emerson divides the map into two distinct areas. To the north and east of this line lies the greater part of the unused land in the province, and of the land which has been opened for settlement in this area approximately 65 per cent. is unused. To the southwest of this line there are very few areas and only a dozen municipalities where any considerable portion of the land is not in some agricultural use.

In the northeast portion there are five distinct areas in which the problem of the utilization of land is difficult and urgent. These areas are first, the eastern portion of the province, that is, the portion lying between the Red River Valley and the eastern boundary of the province, second, the northern Red River Valley area, comprising chiefly the municipalities of St. Andrews and St. Clements, third, that whole territory lying north of township 16, bounded on the east by Lake Winnipeg, and on the west by Lake Manitoba, generally referred to as the Mid-Lake area, fourth, the district lying west of Lake Manitoba, known generally as the Amaranth-Shergrove area, and fifth, the Mossey River area just west of Winnipegosis.

These five areas have in common many features contributory to the problem. They are very similar geologically, being boulder till underlaid by either granite or limestone, granite being in the east and limestone in the west. Topographically they are flat and generally poorly drained. The similarity of the main soil types can be seen by reference to the soil sections of the reports that follow. Other similarities are the low summer temperatures, the short growing season which is chiefly due to the backward weather in the spring. Considerable time was spent in these areas by the survey parties in an endeavor to reach a satisfactory and unanimous solution of the land utilization problem. The reports follow, either verbatim or summarized.

In the southwestern district the problem would seem to centre around two areas adjacent to the Assiniboine River, and the more intensive use of the land in the extreme southwest; throughout the whole of this area, however, there occur isolated parcels which are dealt with in the body of the report.

## Ownership

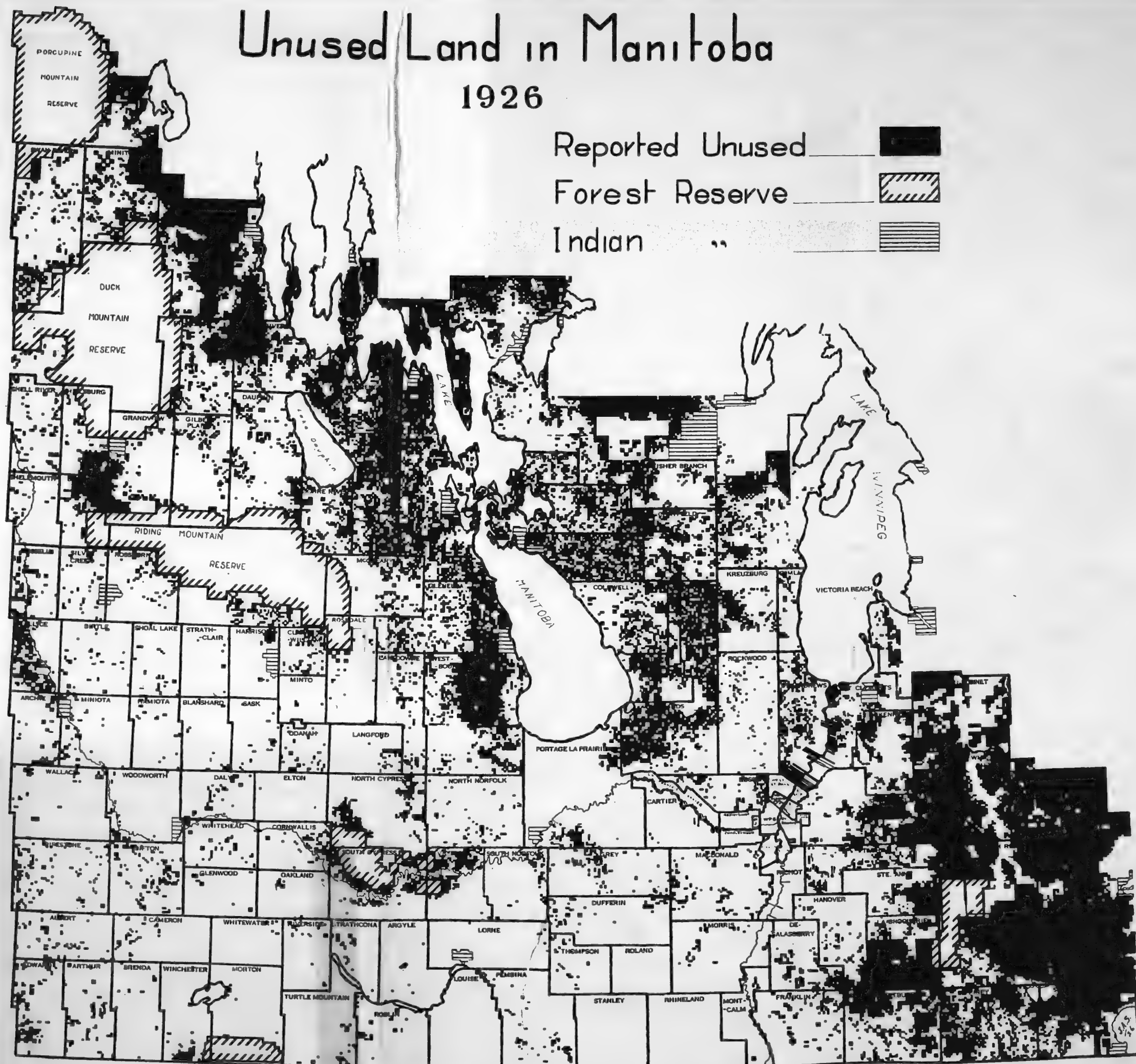
Table No. 1, which is appended to this chapter, shows a total of 4,552,584 acres of land listed as unused in the organized territory and 5,135,634 acres in the



# Unused Land in Manitoba

1926

Reported Unused \_\_\_\_\_  
 Forest Reserve \_\_\_\_\_  
 Indian \_\_\_\_\_



MAP No. 1







## OWNERSHIP OF LAND

unorganized territory which has been surveyed, making a grand total of 9,688,218 acres. Of the unused land which is situated in organized territory the following summary of ownership is given:

Dominion Government.....	43.16%
Soldier Settlement Board.....	2.97%
Hudson's Bay Company.....	5.94%
Municipalities.....	3.45%
Provincial Government.....	4.68%
Local Owners.....	7.84%
Manitoba Owners (Other than Local).....	18.64%
Canadian Owners.....	5.17%
Foreign Owners.....	8.15%
	100.00%

If the unorganized territory be included the percentages are changed by the addition of considerable acreage to the Dominion Government and Hudson's Bay Company columns.

The municipal officials supplying the information were asked to rate the unused land in their municipalities as good, medium or poor. According to their rating there is:

9.57%.....	Good Land.
46.50%.....	Medium Land.
43.93%.....	Poor Land.

This rating would seem to bear out the first hypothesis that the unused land in settled areas was definitely inferior to that which is occupied and farmed.

It should be noted that the statistics given in Table No. 1 are not infallible. Some of the municipal officials omitted from their lists lands which were definitely non-agricultural, and in a few cases the necessary corrections have not been made. Again, the lists were made out early in the summer and members of the survey party in checking up, occasionally found that land listed as unused had recently been sold to new settlers or neighbors, and occasionally found land listed as abandoned again under cultivation.

Schedule "A" asked the municipal officials to note land which had once been farmed and abandoned, 313,779 acres were reported in this column, or 7.7 per cent. of the total amount of unused land and 2.2 per cent. of the area of occupied farms in 1921. How much actually has been abandoned and subsequently reoccupied it was impossible to determine.

### *Dominion Government Land*

The Dominion Government owns and controls the natural resources of the three prairie provinces and it is therefore the largest owner of unused land in the province. This circumstance has probably contributed materially to the present situation in which the province finds itself with a considerable amount of abandoned land and a large number of districts in which it is necessary for the province to give assistance to settlers. The fault lies not with the administrative officers but with the general policy which has been to open practically any surveyed land at the demand of settlers without any attempt at direction. The lack of a sufficient staff of inspectors has also resulted in many cases of entries for homestead where the intention of the applicant was simply to take off the merchantable timber and cordwood from the homestead and adjacent land.

Frequently the wood-cutting has not been confined to the limits of the homestead, and as soon as the land was stripped of its timber the homestead was abandoned. Closer supervision would prevent this illegal exploitation and it would seem that co-operation between the Dominion and Provincial Govern-



ments is necessary in order to secure the proper development of the natural resources unless they are speedily handed over to the province to administer.

#### *Soldier Settlement Land*

The Dominion Government, through the Soldier Settlement Board, also holds title to considerable land in the province. Some of this was previously homesteaded land, but over two-thirds of the loans granted by the Board were on purchased land, so that approximately 200,000 acres of land previously alienated has returned to the crown. This reversion to the crown, of lands previously assessable which had in many cases supported fairly successful settlers, has created a taxation problem in some districts, notably the municipalities of Eriksdale and Coldwell in the Mid-Lake district, and Lakeview, Glenella, McCreary, St. Rose and Lawrence in the area west of Lake Manitoba. The situation is further aggravated by the reversion of alienated Provincial Government lands in some of these municipalities. Other municipalities have suffered loss of revenue to a less degree, and the civic problem thus created calls for some public action in the re-settlement of these lands and the adjustment of the taxation problem.

#### *Hudson's Bay Company Land*

In 1869 the Dominion of Canada purchased from the Hudson's Bay Company their rights to the land in the North-West Territories. The company obtained the sum of £300,000 and retained one-twentieth of all the land in addition to tracts surrounding their trading posts. Section 8 and three-quarters of Section 26 in each township is set apart for the company as each area is surveyed, and in the settlement of a district the sale of the Hudson's Bay Company land follows very soon after the taking up of homesteads, unless it happens to be inferior in quality. The company land is generally obtainable at reasonable prices and on good terms.

#### *Provincial Government Land*

This land consists of grants from the Dominion Government on consideration of the drainage of certain areas by the province and certain lands transferred in 1885, known as "Swamp Lands;" some other land originally granted to the Manitoba and Northwestern Railway was also taken over by the province. Since 1922 sales to the extent of over 100,000 acres have been cancelled by the Provincial Government Lands Department.

#### *Municipal Land*

This has been acquired by the various municipalities by being "bought in" at tax sales.

The settlement of provincial and municipal lands which are suitable for agriculture might be undertaken as part of a Provincial Land Policy with assistance granted on a basis similar to that afforded by the Overseas Settlement Scheme. A proposal to effect this is included in the list of recommendations made below.

#### *Non-Resident Ownership*

Table No. 1 which classifies the private owners by place of residence also reveals that considerable land had been acquired for speculation purposes. Owners who are resident in the municipality in which their land is situated hold 7.84 per cent. of the unused land, while non-resident owners hold 31.96 per cent. made up as follows: Manitoba owners, 18.64 per cent; Canadian owners, 5.17 per cent., and Foreign owners, 8.15 per cent. It may be assumed that local owners are, in the main, persons who intend to develop their holdings when economic conditions warrant their development. Being resident in the district, they are aware of the quality of their land and its general possibilities.

Non-resident owners, however, are often misguided and ill-informed concerning the quality of their land, its agricultural possibilities and its actual value. The information gathered on Schedule "B" shows this conclusively for many had never seen their land, but had been told by the previous owners that it was all arable,



while the report of the field men would be altogether different. This was especially true of "foreign" owners, most of whom were resident in the United States. The unfortunate element in this is that these unused lands are changing hands frequently, and investments in Manitoba farm lands are judged by the outcome of the investments in these unused lands.

In Schedule "B" and Schedule "C" the question was asked, "From whom did you acquire this land?" and the replies were classified as original owners and non-original owners. In the original owner class were included all who obtained land by homestead or purchase from the Dominion Government, Provincial Government, Hudson's Bay Company or Railway Companies. The answers when tabulated show that the settlers visited were in 45 per cent. of the cases the original owners, while only 18 per cent. of the owners of unused land were the original owners. This would seem to indicate that much of the land which is being turned over in the speculative land market is inferior and sub-marginal unused land.

A few of the speculators have been disillusioned and are willing to sell for any reasonable offer, but many are still holding their land at prices considerably above any price that could reasonably be predicted in the next decade. Less than 20 per cent. of the private owners were unwilling to sell their holdings, and of the 998 (or 80.28 per cent.) who indicated their willingness to sell, the great majority mentioned prices which were regarded as fair and reasonable.

## *Classification of Lands*

In describing the unused lands certain terms have been used in a technical way, and these require some definition and elucidation.

### *1—Truck Farming or Market Gardening*

Where fertile soil occurs in close proximity to a large city, or if the transportation facilities are good and costs low, the most economic use of such land is generally the growing of vegetables and small fruits. A small acreage is usually sufficient for the market gardener, and the price of the land is too high to allow for any but this most intensive use.

### *2—Grain Farming*

The farm business is organized on the basis of the utilization of all the arable land for grain crops which are the main source of the cash income of the farm. A large portion of the area of the farm must be arable. A few head of livestock, poultry, etc., may be kept primarily for home use and the surplus marketed. The soil and climate must be such that a permanent rotation of crops can be maintained without seriously depleting the fertility of the soil.

### *3—Mixed Farming*

The farm business is organized on a basis of obtaining cash income from grain crops and from livestock products. This type may be practised in most grain farming areas, and also in areas where the farms include a portion of rough land or low land. The availability of good water is a factor which must be considered in addition to those mentioned in (2).

### *4—Dairying*

The farm business is organized on the basis of obtaining the chief cash income from dairy products, whole milk, cream, butter or cheese. Generally, dairying may be practised in any area suitable for mixed farming if transportation facilities are adequate. Dairying may also be practised in areas where the amount of arable land per farm is less than that required for mixed farming, provided there is sufficient acreage of arable land on which to grow abundance of succulent winter feeds.



#### 5—*Summer Dairying*

The farm business is organized as above (4), but this type may be practised in areas where there is not sufficient arable land to grow winter feed or where soil and climatic factors prevent the provision of succulent winter feed on the farm, while there is abundance of summer pasture and wild hay. Where such conditions exist close to a large consuming centre winter feeds may be purchased.

#### 6—*Stock Farming*

The business is organized on the basis of obtaining income chiefly from livestock and all grains or feed raised are fed on the farm. This type may be practised under conditions similar to those mentioned in (4) and (5), and may be practised where the transportation facilities are not adequate for dairy farming.

#### 7—*Grazing or Ranching*

Land is described as grazing land when it is fertile enough to be clothed with vegetation but is non-arable. It may be classed as non-arable because of topographical features such as steep hillsides or low lying and undrainable areas or because it has bedrock close to the surface or gravelly subsoil covered only by a shallow layer of soil, or because of excessive stoniness. If the arable portions of a parcel of land occur in patches of less than ten contiguous acres the land is classed as grazing land. Grazing land may occur in close proximity to arable land and by being used in conjunction with the arable land it may be regarded as suitable for mixed farming.

#### 8—*Forest*

Land which, because of topographical, soil or climatic conditions, is non-arable and incapable of giving a good growth of grass is classed as forest land. Land at present in forest is included in this class if the cost of clearing and preparing for agricultural use would seem to be excessive under present conditions, and especially if the necessary economic and social facilities demanded by settlement would be expensive to instal and maintain.

### *Immediate Settlement Opportunities*

This classification has been maintained throughout the report and consideration has also been given to the economic and social factors mentioned under these headings in Part I of this report. On this basis it is estimated that there are immediate opportunities for settlement on virgin land and on land partly improved but abandoned, numbering 1,435, made up as follows:

Truck Farming.....	40
Grain Farming.....	125
Mixed Farming.....	760
Dairying.....	200
Summer Dairying.....	140
Stock Farming.....	170
	1,435

#### *Truck Farming*

These opportunities are in the vicinity of Winnipeg, chiefly in the municipalities of St. Andrews and St. Clements, but there is no danger of over-development of production if provision be made for the more efficient marketing of these products. Further, the survey of the suburban municipalities suggested on page 68 may result in the opening of other land close to Winnipeg for market gardening purposes, thus throwing some of the land more distant from market below the margin of profitable cultivation.

The development of the canning and pickling industries in the district would give much greater opportunities than those listed.



### *Grain Farming*

These opportunities are chiefly in the southern and southwestern portion of the province, and might easily be combined with the next mentioned class.

Slight improvements in drainage in the Red River Valley would open more than 100 extra farm units of 320 acres for either grain or mixed farming.

### *Mixed Farming*

These are found throughout the southwestern part of the province or south and west of the line mentioned above on page 10, and in the Swan River Valley and the Red River Valley, both north and south. Select farms also in the Langruth district, a few between the lakes and a select few in the eastern portion of the province might be included.

### *Dairying*

These opportunities are to be found throughout the province, but chiefly in the Red River Valley, with select areas such as Whitemouth, Coldwell, Bifrost and Dauphin districts. Also in any area where mixed farming may be practised dairying may be substituted if transport facilities are adequate. The growth of the dairying industry, which has been immense in Manitoba, and the securing of markets for dairy products will increase the opportunities in this line.

### *Summer Dairying and Stock Raising*

The eastern portion of the province, together with the Mid-Lake area and the district immediately west of Lake Manitoba, is suitable for these types of farming, and only by directing the settlers to confine their attention to these types can a repetition of the errors of the past decade be avoided.

### *Ranching*

No estimate was made of the ranching or grazing possibilities as much of the land suitable for this purpose is situated near arable areas and its most economic use would be as summer pasture, in conjunction with these arable farms. The Big Grass Marsh, the Waterhen District and some lands in the Assiniboine Valley provide some excellent opportunities.

Some of the areas recommended in the district reports as suitable for afforestation might also be regarded as offering summer pasture as an alternative use.

### *Further Settlement Opportunities*

The estimate given above does not exhaust the settlement opportunities of the province, but simply estimates the number that can be immediately taken care of without public expenditure.

Drainage extension, road building and railroad extension will open new areas, which will undoubtedly prove attractive to new settlers. Such areas are: the northern Red River Valley, the Basket Lake district, the Birch River and Swan Lake district, and select portions of eastern Manitoba.

Numerous opportunities are continually opening up for settlement in the settled areas when large holdings are broken up, and if some permanent organizations, both local and provincial, could be instituted to list such sub-divisions, settlers could be more readily directed to suitable locations.



Table No. 1

## Ownership of "Unused Land"

Name of Municipality	Dominion Govt.	Soldier Sett. Board	Hudson's Bay Company	Municipality	Provincial Govt.	Private Owners			TOTAL
						Local	Manit.	Canadian	Foreign
Archie.....	2,240	640	2,240	480	....	....	3,840	2,880	1,920
Arthur.....	....	....	....	....	....	1,760	7,200	4,800	960
Armstrong.....	43,680	4,320	6,080	12,960	7,360	3,200	23,520	8,560	5,600
Argyle.....	....	....	160	....	....	....	640	....	800
Albert.....	....	160	1,280	....	....	....	4,320	1,440	7,200
Bifrost.....	65,440	....	9,440	160	2,720	30,813	6,035	800	607
Birch River.....	143,620	....	9,520	985	....	180	1,430	140	....
Birtle.....	1,760	160	....	....	480	640	3,840	1,120	720
Blanshard.....	320	....	....	....	....	480	2,880	....	....
Boulton.....	75,360	....	1,120	160	800	640	3,200	160	800
Brenda.....	1,760	320	....	....	....	....	800	640	....
Brokenhead.....	5,440	....	3,520	1,920	....	760	38,560	1,960	6,160
Cornwallis.....	320	....	1,600	....	160	....	....	....	14,080
Cameron.....	5,640	480	800	320	....	480	160	70	7,950
Cartier.....	640	....	....	....	....	....	240	720	280
Clanwilliam.....	5,280	160	1,440	800	4,960	640	4,080	1,280	800
Coldwell.....	20,320	8,480	7,040	5,440	4,640	2,240	8,160	960	6,240
Cypress, North.....	47,120	320	2,080	160	....	160	19,000	....	800
Cypress, South.....	102,460	....	3,360	1,920	560	320	1,240	9,240	720
Chatfield.....	50,240	1,760	6,080	1,600	320	1,600	320	....	5,280
Daly.....	1,920	320	160	320	....	....	1,600	4,880	9,200
Dauphin.....	15,040	3,360	3,680	2,720	1,280	2,640	22,240	9,120	4,960
De Salaberry.....	1,920	....	1,280	1,080	....	1,040	14,120	1,200	6,480
Dufferin.....	960	1,600	320	....	....	....	5,120	160	5,760
Eriksdale.....	12,960	6,280	10,400	....	....	54,600	27,312	1,920	4,000
Elice.....	9,460	160	1,600	6,240	320	800	15,688	9,820	2,400
Elton.....	....	160	....	....	....	....	....	160	....
									320



Ethelbert.....	160	.....	9,280	3,840	.....	160	4,000	480	640	18,560
Edward.....	.....	.....	1,280	.....	.....	.....	6,960	5,920	14,560	28,720
Franklin.....	.....	3,000	640	1,520	.....	320	9,520	640	8,200	25,120
Glenella.....	13,680	3,200	4,480	2,880	12,240	160	17,240	2,000	17,480	73,360
Gimli.....	2,240	160	1,120	3,840	.....	480	2,400	480	320	11,040
Glenwood.....	1,440	.....	160	.....	.....	.....	320	1,715	320	3,955
Grandview.....	2,400	160	1,940	320	.....	800	3,520	4,320	480	13,940
Gilbert Plains.....	9,280	160	1,920	960	640	800	4,880	10,800	1,600	31,040
Grey.....	.....	.....	1,120	.....	.....	240	14,460	3,920	6,160	25,900
Hamiota.....	.....	480	.....	.....	.....	2,720	1,280	320	.....	4,800
Hanover.....	4,160	.....	4,160	2,720	3,680	1,280	4,800	960	8,320	30,080
Harrison.....	640	.....	1,440	.....	.....	.....	320	.....	.....	2,400
Hillsburg.....	26,720	.....	10,400	.....	.....	.....	160	.....	.....	37,280
Kreuzberg.....	50,080	880	1,600	320	.....	4,240	3,520	1,120	1,440	63,200
La Broquiere.....	67,200	480	640	1,440	160	92,320	3,200	960	960	167,360
Lac du Bonnet.....	157,510	.....	7,520	740	.....	.....	11,740	.....	.....	177,510
Lakeview.....	19,520	16,480	7,520	12,320	44,000	2,880	26,160	8,800	23,840	161,520
Langford.....	6,160	160	480	160	160	.....	480	.....	160	7,760
Lansdowne.....	.....	1,920	640	.....	1,120	800	8,480	3,520	5,440	21,920
Lorne.....	.....	.....	.....	.....	.....	.....	1,080	.....	.....	1,080
Lawrence.....	165,875	16,960	16,640	25,600	14,560	.....	36,018	.....	.....	275,653
Mossy River.....	113,040	3,200	10,160	.....	7,680	2,240	9,005	1,440	960	147,725
Miniota.....	3,040	.....	480	.....	.....	720	2,080	1,440	4,480	12,240
Minitonas.....	30,080	3,520	4,640	3,520	.....	320	12,640	21,920	1,920	78,560
Minto.....	160	.....	800	.....	.....	.....	160	320	1,440	1,440
Montcalm.....	.....	.....	166	.....	.....	.....	480	640	1,040	2,326
Morris.....	.....	.....	.....	.....	.....	1,120	800	160	6,080	8,480
Morton.....	800	.....	480	480	.....	.....	160	480	.....	2,400
McCreary.....	11,680	.....	5,120	.....	640	320	10,160	320	7,040	25,280
Macdonald.....	.....	.....	.....	.....	.....	960	8,160	800	15,840	25,760
Norfolk, North.....	3,440	2,000	320	560	400	.....	3,440	1,840	320	12,320
Norfolk, South.....	640	.....	1,120	3,160	.....	.....	2,486	2,605	560	10,571



# *Ownership of "Unused Land"* (Continued)

Name of Municipality	Dominion Govt.	Soldier Sett. Board	Hudson's Bay Company	Municipality	Provincial Govt.	Private Owners				TOTAL
						Local	Manit.	Canadian	Foreign	
Oakland.....	320	.....	.....	320	640	.....	1,600	190	.....	3,070
Ochre River.....	5,920	6,880	4,000	3,040	4,960	.....	5,520	480	640	31,440
Odanah.....	.....	.....	.....	.....	.....	3,440	3,840	480	880	8,640
Pembina.....	3,200	.....	1,120	.....	240	4,045	2,424	400	720	12,149
Piney.....	.....	1,920	2,800	5,600	.....	6,480	11,040	4,160	4,960	36,960
Pipestone.....	4,960	480	3,200	.....	3,040	1,440	10,820	2,840	1,760	28,540
Portage la Prairie.....	.....	240	1,840	9,920	1,200	4,000	7,160	5,360	1,840	31,560
Richot.....	.....	.....	.....	.....	.....	.....	1,360	160	.....	1,520
Riverside.....	1,440	160	80	.....	.....	160	1,920	960	.....	4,720
Roblin.....	1,920	320	.....	160	320	480	2,080	960	2,560	8,800
Rockwood.....	.....	7,680	.....	6,816	.....	.....	.....	.....	.....	14,496
Rosburn.....	1,760	640	655	400	12,000	.....	1,520	.....	.....	16,975
Rosser.....	640	160	.....	.....	.....	.....	12,680	2,240	8,960	24,680
Russell.....	4,800	160	4,800	480	2,080	5,920	3,840	320	2,240	24,640
Rosedale.....	37,760	160	.....	320	3,360	1,040	640	.....	.....	43,280
Saskatchewan.....	500	160	.....	380	70	520	1,357	160	800	3,947
Shellmouth.....	.....	.....	.....	.....	320	320	2,960	640	2,560	6,800
Shell River.....	6,635	800	3,440	1,600	960	160	1,120	1,600	2,560	18,875
Shoal Lake.....	1,120	160	.....	.....	800	1,920	1,760	.....	320	6,080
Sifton.....	5,120	800	2,720	1,520	160	1,840	4,560	11,460	1,120	29,300
Signes.....	34,610	4,215	8,950	1,205	.....	3,570	14,610	3,040	720	70,920
Silver Creek.....	800	.....	1,120	.....	2,240	.....	3,120	640	2,640	10,560
Sprague.....	119,760	320	3,680	1,440	.....	8,800	2,560	1,280	3,360	141,200
Springfield.....	113,720	880	7,120	560	15,680	6,391	48,720	8,068	22,400	223,539
Strathclair.....	1,120	.....	.....	.....	.....	.....	1,765	.....	.....	2,885
Strathcona.....	960	640	640	.....	.....	.....	2,880	1,280	.....	6,400
Stuartburn.....	57,120	.....	10,080	1,440	38,560	160	5,120	800	2,880	116,160
Swan River.....	12,480	1,600	4,000	800	160	3,840	32,800	160	.....	55,840



St. Clements.....	12,570	400	1,250	120	2,928	4,610	17,547	530	7,087	47,042
St. Anne.....	50,800	.....	1,840	1,620	.....	2,520	3,080	.....	360	60,220
St. Laurent.....	640	2,240	2,880	.....	320	2,860	20,680	9,330	16,920	55,870
St. Andrews.....	2,080	2,260	1,890	926	320	15,583	38,405	2,356	8,126	71,946
Ste. Rose.....	18,662	5,600	4,160	.....	1,760	38,959	28,385	8,480	6,620	112,626
Turtle Mountains.....	.....	.....	.....	.....	.....	320	1,600	1,120	2,560	5,600
Tache.....	960	3,570	1,600	2,880	5,100	1,865	17,828	1,266	10,567	45,636
Thompson.....	640	.....	480	160	320	480	1,600	.....	800	4,480
Victoria.....	23,360	640	2,080	160	1,360	.....	1,600	1,840	1,280	32,320
Whitewater.....	800	.....	160	320	.....	.....	.....	160	.....	1,440
Westbourne.....	5,120	4,600	2,000	.....	480	1,920	12,640	2,560	16,320	45,640
Wallace.....	.....	.....	2,720	.....	.....	.....	4,960	480	2,080	10,240
Whitemouth.....	73,859	1,280	6,873	6,760	1,553	.....	13,962	480	2,240	107,007
Winchester.....	5,600	.....	640	1,200	.....	.....	.....	6,076	.....	13,516
Woodlands.....	8,640	4,480	4,560	4,960	2,160	960	42,330	7,600	21,645	97,335
Woodworth.....	480	.....	1,120	.....	.....	960	1,440	2,400	960	7,360
Whitehead.....	160	.....	.....	.....	.....	1,870	6,820	2,080	.....	10,930
Woodlea.....	38,640	160	6,560	.....	940	13,320	20,260	1,280	5,760	87,120
Total Unused } Organized Area }	1,964,801 43.16%	135,045 2.97%	270,524 5.94%	156,912 3.45%	213,071 4.68%	356,826 7.84%	848,567 18.64%	235,666 5.17%	371,172 8.15%	4,552,584

*Unorganized Area, but Surveyed and Open for Settlement*

4,876,374	.....	240,060	.....	19,200	.....	.....	.....	.....	.....	.....
TOTAL UNUSED..	6,841,175	135,045	510,584	156,912	232,271	356,826	848,567	235,666	371,172	9,688,218
	70.61%	1.40%	5.27%	1.62%	2.40%	3.68%	8.76%	2.43%	3.83%	



## Physical Factors in Land Settlement

"Looking at the history of wealth in its earliest stage, it will be found to depend entirely on soil and climate: the soil regulating the returns made to any given amount of labor: the climate regulating the energy and constancy of the labor itself."—*Thomas Buckle*.

The physical factors, including the nature and composition of the soil, the elevation above sea level, drainage, and climate, directly and indirectly affect the use of land. The elevation has a direct bearing on the nature of the soil and the length of growing period. Areas of low relief and consequent poor drainage usually have considerable land out of use until public expenditure in drainage makes it arable. The climate directly affects the kinds of crops grown and thereby limits land in certain areas to fairly definite crops and systems of farming.

### *Topography*

Manitoba is not a prairie province in the sense that Saskatchewan is. There are in the southern portion marked variations in altitude from the Laurentian Plateau in the south-east corner to the Riding Mountains in the north-west. Between these two heights of land lies the level, fertile plain of the Red River Valley and the plateau of the Second Prairie Steppe which runs from the Manitoba escarpment to the Saskatchewan boundary.

The province may be divided into four fairly definite topographical areas (see Map No. 2). The Lowland Area or the Red River Valley, the Highland Area in the south-east, the Second Prairie Steppe, and the Mountain Areas. These latter are called mountains only in a relative sense, for in no case do they rise more than 2,600 feet, and the rise in general is gradual.

#### *The Lowland Area*

This area is about 60 miles wide at the International boundary, where it is called the Red River Valley, and extends from the Highland Area on the east to the Second Prairie Steppe on the west. It broadens toward the north to include the Portage Plains on the west and the Beausejour district on the east.

The lowest part of the area is in the basin of Lake Winnipeg at an altitude of 713-722 feet above sea level. The Inter-Lake Area, the lakes themselves and the area west of Lake Manitoba to the Riding Mountains up to an elevation of 950 feet are included in the Lowland Area.

The topography in the northern portion of the Lowland Area is not as flat or level as the Red River Valley proper, but is broken by ridges, mainly running north-west.

#### *The Highland Area (South-East)*

This area is a glacial drift plateau rising 500 feet above the lowest part of the Red River Valley and characterized by wooded ridges with low and swampy lands lying between. There are considerable areas of sand and some granite outcrops as one nears the Laurentian Plateau.

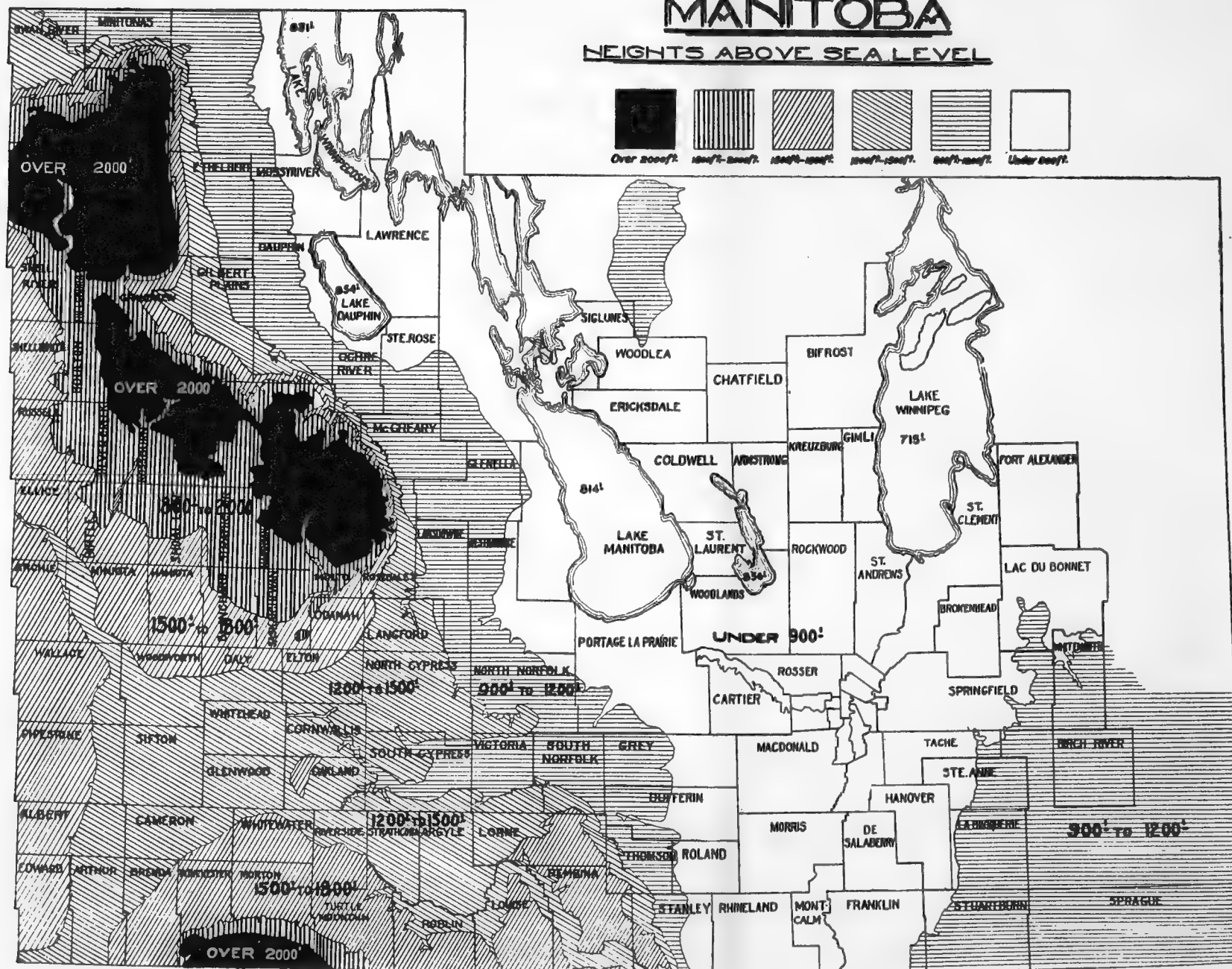
It extends eastward nearly to the Lake of the Woods and northward to approximately the main line of the Canadian Pacific. About 30 miles from the boundary of Ontario it passes into the rugged, rocky country of the Laurentian Plateau. A distinctive feature of this area is the limestone outcrops near its western boundary where the famous Tyndall limestone for building purposes is quarried.

#### *The Second Prairie Steppe*

The eastern boundary of this area is the striking topographical feature known as the Manitoba escarpment. In the south this is formed by the Pembina Mountains which continue northwest until they are interrupted by the broad



Over 2000ft.      1000ft.-2000ft.      1000ft.-1000ft.      1000ft.-1000ft.      1000ft.-1000ft.      Under 1000ft.



MAP No. 2







valley of the Assiniboine River. North of the Assiniboine the escarpment is formed by the Riding, Duck and Porcupine Mountains. The Pembina Mountains are abrupt and rugged only on their eastern exposure. When this area, from one to five miles wide, is passed a rolling fertile plateau, broken in places by hills, extends to the Saskatchewan boundary. These latter hills are situated in the centre of this plateau, the most prominent of them being the Tiger, Carberry and Brandon Hills.

The Riding and Duck Mountains rise in the north-west of the Second Prairie Steppe. Their eastern exposure fronts immediately on the Lowland Area and the rise may be very abrupt, amounting in some places to over 500 feet in a few miles. The range in elevation in these mountains is from 2,400 to 2,600 feet. On their southern and western face the mountains gradually shade off to the Uplands of the Second Prairie Steppe.

#### *Turtle Mountain*

This is an isolated highland area rising above the general level of the upland in south-western Manitoba. The surface is uneven owing to the irregular deposition of the glacial drift deposits, but in general it is a flat topped plateau of small extent but rising to 2,500 feet above sea level.

#### *Drainage*

The natural drainage courses of the southern portion of the province are shown on Map No. 3. In this map it will be seen that the province is naturally very well drained with the exception of a portion of the Lowland Area, and this lack of drainage has been largely remedied by artificial drains constructed by the Provincial Government. These drainage works are shown on Map No. 4. Some work remains to be done in order to make the land suitable for agriculture.

### *Climate*

The climate of the southern part of the province is affected to a marked degree by the topographical features mentioned above.

The total annual precipitation is from 16 inches to 20 inches, with a small area in the east slightly more favored. The Lowland Area has an average of 18 to 20 inches annually and the greater part of the Second Prairie Steppe has a slightly lower average.

Map No. 5 is an attempt to show from all existing records the distribution of total precipitation. This interpretation is open to some question, but the scarcity of meteorological stations and the intermittent character of the reports of some of them render authoritative interpretation impossible.

A noteworthy feature of the precipitation, however, is that often more than half of the total falls during the growing season—April to July, inclusive.

Another noteworthy feature of Manitoba's climate is the almost complete absence of excessive heat in summer. In the southern portion of the settled area, however, the mercury occasionally rises to the nineties, but such hot spells seldom last more than one day and immediate relief is afforded by the cool evenings and nights.

The most important limiting factor from an agricultural point of view is frost. Three maps, Nos. 6, 7 and 8, are shown in an endeavor to portray this factor. Maps Nos. 6 and 7 show the dates of the latest spring frost and the earliest fall frost. In these the influence of elevation and of nearness to the larger lakes is readily seen. Map No. 8, which is an extract from the physical and climatic map published by the Dominion Government, shows the average length of the growing season. This is calculated from the date of seeding to the date of the first killing frost, and here again the influence of elevation and of water areas is seen. This shows the Red River Valley as having an average growing season of 150 days,



with a small portion in the south averaging 160 days, while the greater part of the Lowland Area has an average of 140 days. The present settled portion may be said to range from 110 to 160 days.

## Soil

### *How Soils are Made*

The soils of Manitoba are nearly all drift soils, that is, they are derived from the unconsolidated materials transported by the ice-sheets during the glacial period, and from materials deposited in glacial lakes. The productivity of the soil has a close relation to the origin and character of the materials from which the soils are derived. The character of the bed rock underlying the drift soils is also important.

During the glacial period great ice-sheets or continental glaciers advanced from the north across Manitoba and carried large quantities of boulders, sand and silt. When the ice melted it left the surface covered with accumulations of this transported material, called the glacial drift. When the ice-sheets began to melt back towards the north, the water was ponded between the high lands to the south and the ice-sheets to the north and formed a great lake known as Glacial Lake Agassiz. Another glacial lake, known as Lake Souris, of lesser size than Lake Agassiz, existed in Southwestern Manitoba. Much of the soil of Southern Manitoba has been formed from the deposits laid down in the beds and along the shores of these glacial lakes. When the glaciers moved southward from the north they transported soil and soil-making material, depositing it in the south. The northward melting of the glaciers further washed the finer soils to the south of the province, leaving the soil covering in the north relatively thin and mixed with rock and boulder, which the water could not transport.

During the period when Lake Agassiz and Lake Souris existed, sand and gravel beaches were made much the same as are made by our existing lakes. These beaches are now relatively long, narrow ridges 5 to 25 feet high and 100 to 600 feet wide. They extend for considerable distances and run mainly in a northwesterly direction. The Arden Ridge is a well-known beach. The C.N.R. from Dauphin to Ethelbert runs along another beach.

These beaches have considerable effect on the agriculture of certain districts. (See report on District 10).

The soils of the lake deposits, except the shore and near-shore deposits and where rivers emptied into the lakes, are mostly prairie soils and have the deep black color, characteristic of such soils. They form the most productive soils of Manitoba. They are mostly clayey in character and in spite of being heavy they are easily worked because of their calcareous nature and abundance of humus. They also retain an abundance of moisture, an important factor in seasons of drought.

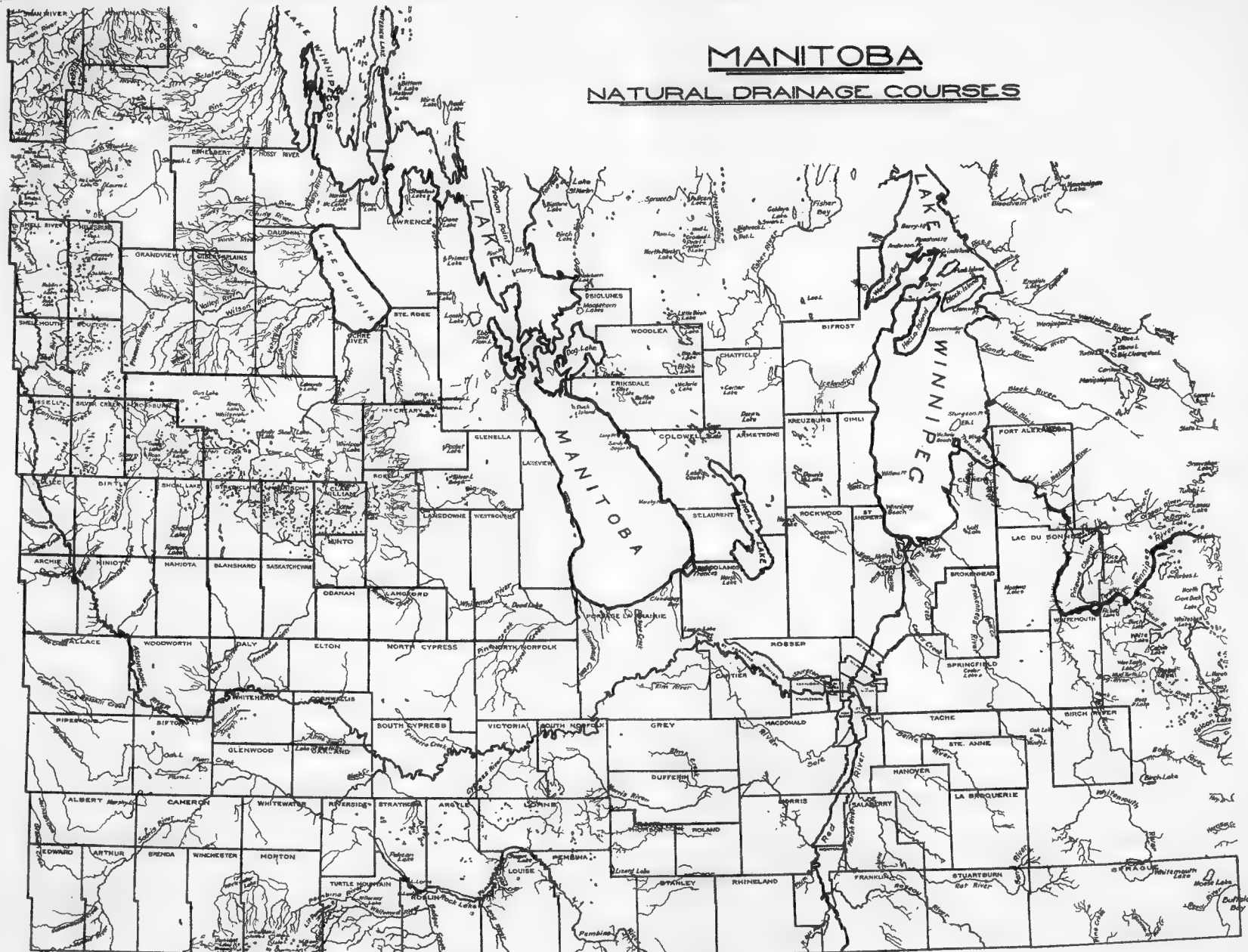
The soils deposited in Glacial Lake Souris in south-western Manitoba are not as heavy as those deposited by Lake Agassiz in the Red River Valley. The probable reason for this is that Lake Souris did not exist as many years as Lake Agassiz, but broke through the Tiger Hills and drained into Lake Agassiz, carrying with it considerable quantities of silts and clays.

The beach soils are sandy in character and because of the relief of the surface and their porous character are easily affected by drought. Some areas of the lake deposited soils, near the borders of the lake or where rivers emptied into the lake, are sandy in character. Such areas are the sandy soils along the Pembina Hills in Stanley and Thomson municipalities, the sandy soils of the Carberry Plains and north-west of Souris. The peculiar feature of these sandy soils is that they are immediately adjacent to or in the midst of areas of good clay loam.



# MANITOBA

## NATURAL DRAINAGE COURSES









**MANITOBA**  
**DRAINAGE DISTRICTS**

DRAINAGE DISTRICTS (shaded)      TRIBUTARY WATERSHEDS (unshaded)

Map labels include: SHELL RIVER, HILLSBURG, GRANDVIEW, CUSTER PLAINS, DAUPHIN, LAWRENCE, ST. ROBT, SIGLINE, WOODLEA, CHATFIELD, BIFROST, SHELLMOUTH, BOULTON, RUSSELL, SILVER CREEK, ROSSBURN, ELICE, DIRTLE, SHAL LAKE, STRATHCLAIR, HARRISON, CLAN WILLIAM, HINTO, ODSDALE, GLENELLA, LAKEVIEW, LANSDOWNE, WESTBOURNE, PORTAGE LA PRAIRIE, WOODLANDS, ST. LAURENT, ROCKWOOD, ST. ADRIEN, FORT ALEXANDER, ST. CLEMENT, LAC DU BONNET, WHITECOURT, BIRTLE, MANITOBA, WINNIPEG, and many others.

DRAINAGE DISTRICTS  TRIBUTARY WATERSHEDS 

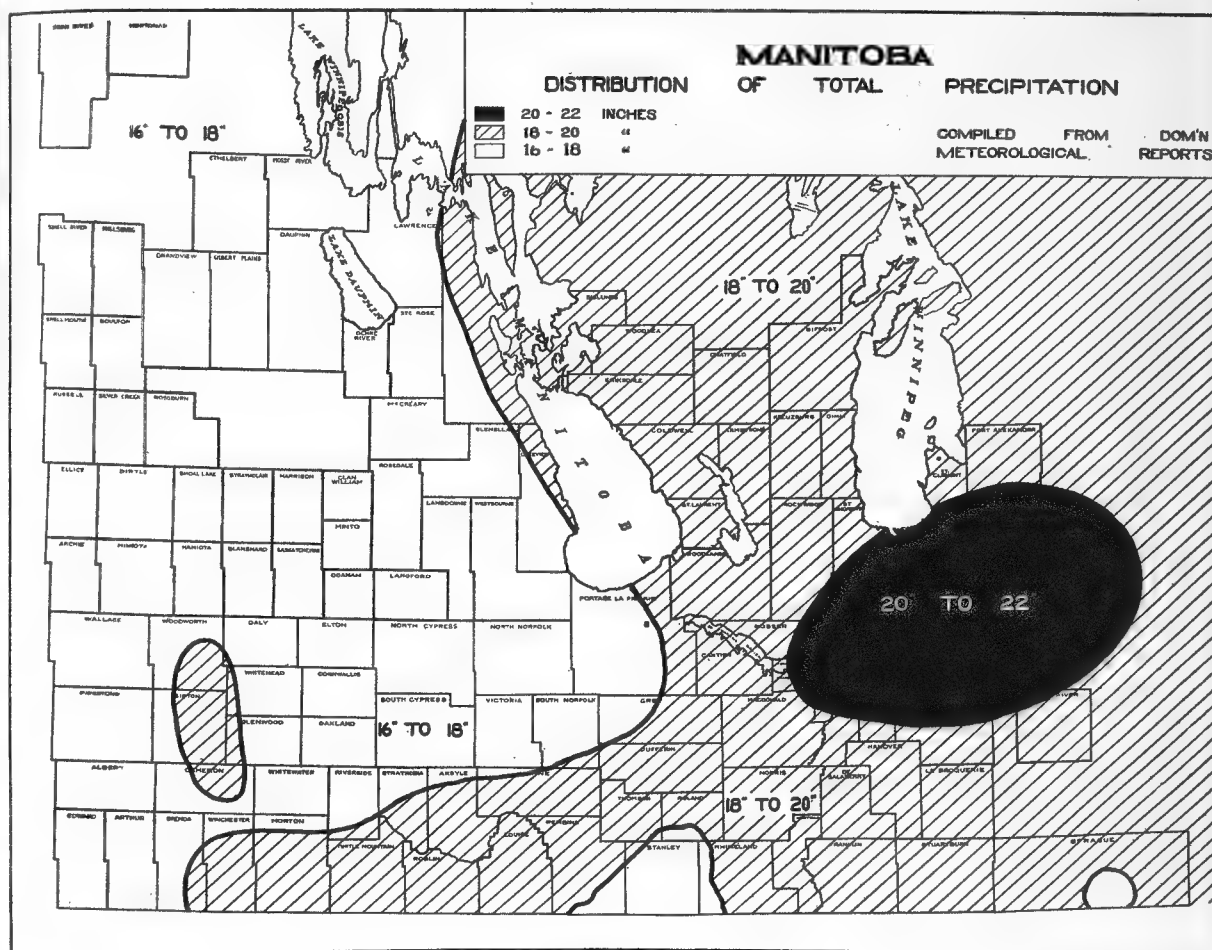
MAP No. 4







## AGRICULTURAL ZONES



MAP No. 5

The foregoing should indicate that on account of their origin the soils of Manitoba may be classified into several fairly definite areas. The following classification has been made by J. H. Ellis, of the Department of Field Husbandry, Manitoba Agricultural College:

### *Agricultural Zones of Manitoba*

"The soils of Manitoba are extremely varied, yet for the purpose of agricultural production there may be recognized eight distinct soil areas, each with different natural problems. These zones are only tentatively outlined and although containing some minor variations within themselves, constitute areas with distinct cropping limitations and possibilities. (See Map No. 9).

"The outstanding features of the eight agricultural zones are as follows:

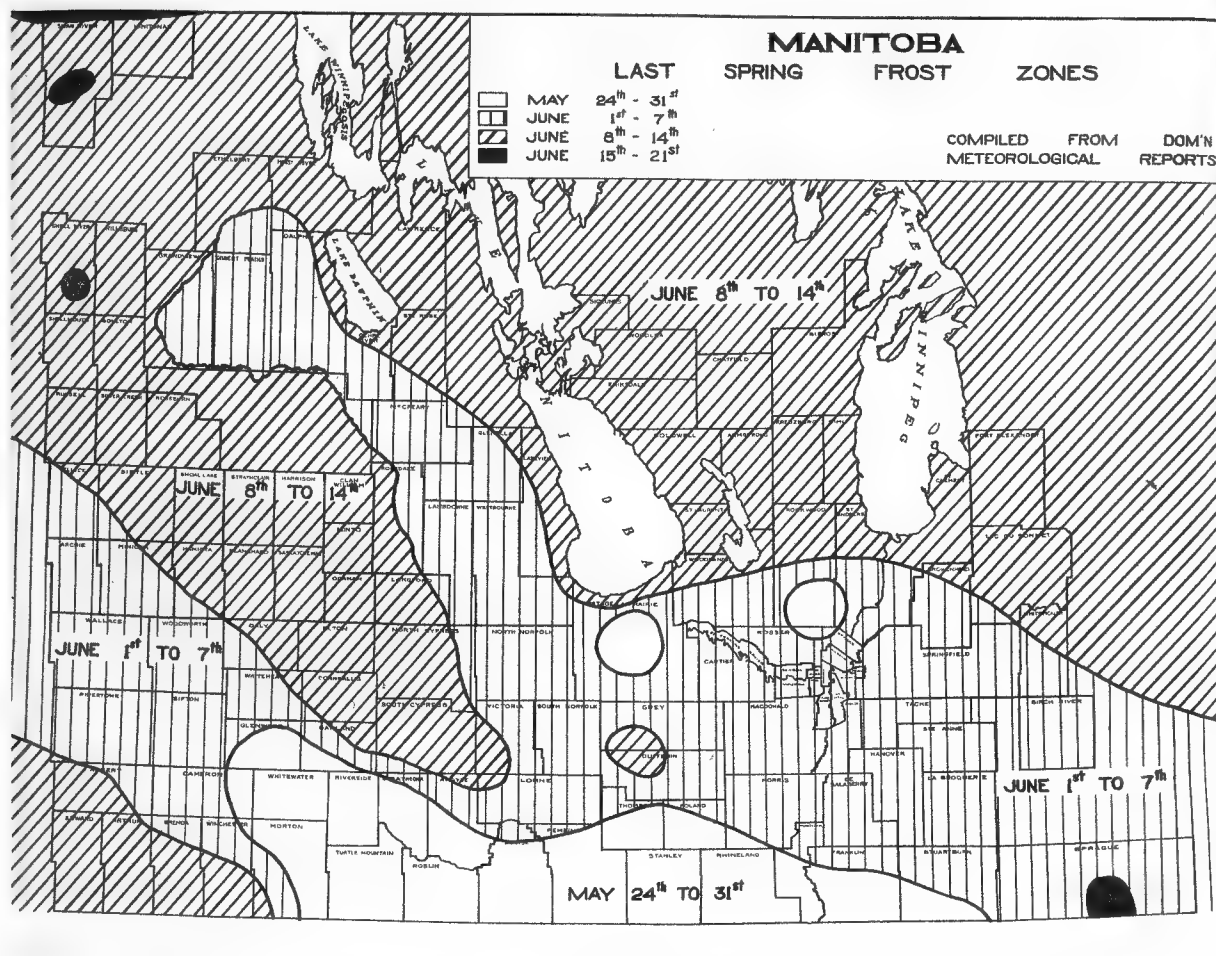
#### *1—The Red River Valley*

"The extent of the Red River Valley zone is shown in the accompanying map and comprises three and a quarter million acres.

"The soil is a rich tenacious clay loam of lacustrine and alluvial formation resting on glacial drift. The underlying rock is chiefly limestone; the depth of



# UNUSED LANDS OF MANITOBA



MAP No. 6

the drift material varies from 40 to 250 feet. The topography is flat, and the elevation is from 725 to 900 feet above sea level, and, owing to the flat topography, drainage is quite a problem. The water is good in most places, but in some sections there is difficulty in securing water for livestock and dugouts have to be used. The rainfall for the Red River Valley is above the average for the province. The total annual precipitation is 20.2 inches, of which 9.8 inches fall in the growing season, April to July; 5.8 inches fall during the fall months, August to October, and the balance is snow. This zone is also warmer than the average of the province. The climate favors the growth of all classes of farm crops, both cereals and grasses. It is also possible to mature early varieties of corn in most seasons."

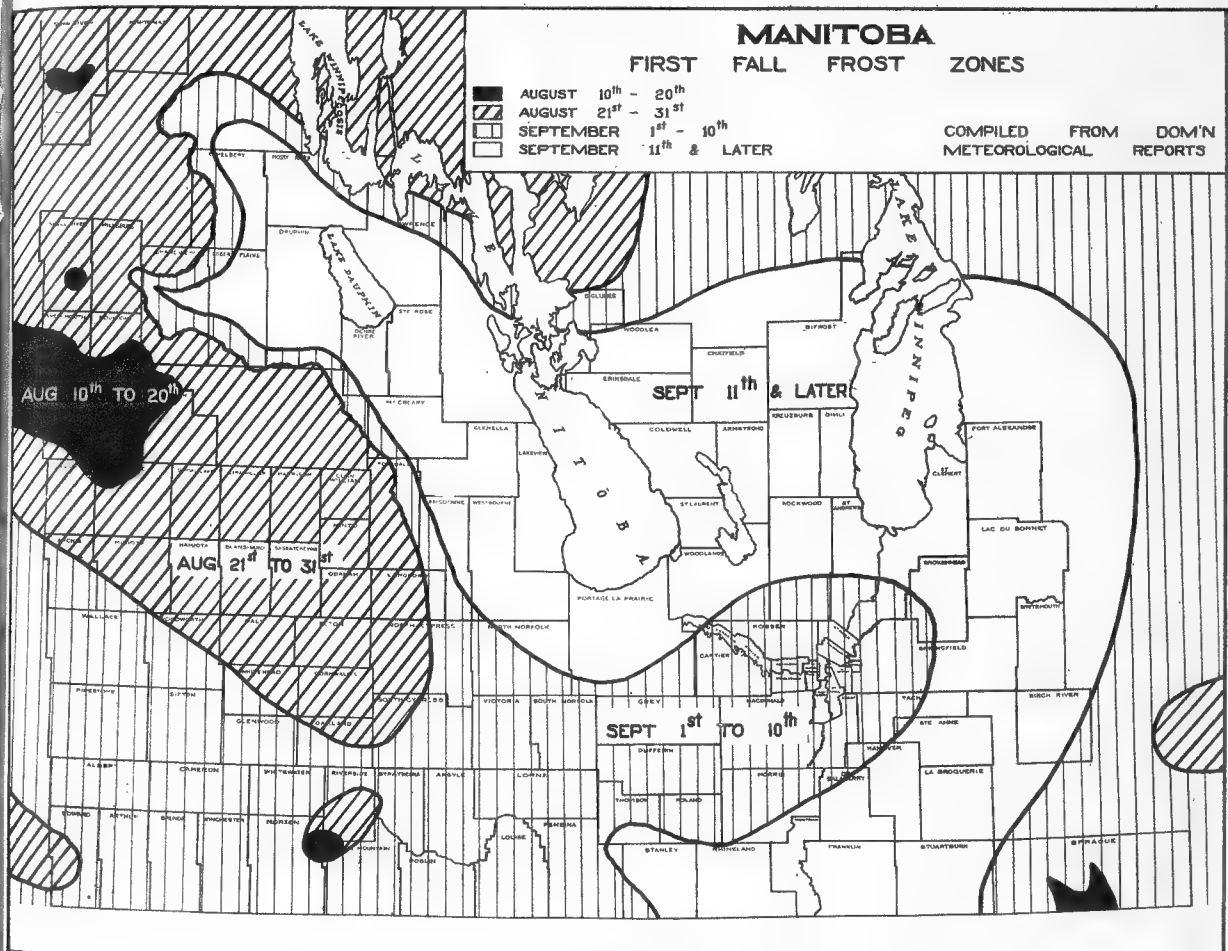
## 2—The Assiniboine Delta

"This zone extends in a fan shape from Brandon to Neepawa, Portage la Prairie and Carman. It contains about one and three-quarter million acres.

"The soil varies from fertile sandy loam to dune sand, resting on quicksand, underlaid by shale and sandstone in the west and limestone in the east. This sand was deposited by the Assiniboine when its waters emptied into Lake Agassiz.



# AGRICULTURAL ZONES



MAP No. 7

The central portion of this zone is largely dune sand, but it grades into fertile sandy loam plains in the north and south. The topography varies from level to dune sandhills and the elevation varies from 900 to 1,200 feet. The drainage is excellent and good water is easily obtained in unlimited quantities from sand point wells.

"The rainfall in this area is higher than the average of the province early in the summer, but from July onwards the rainfall is below the average of the province. The average annual precipitation is 17.8 inches, of which 8.9 inches fall in April to July, 4.8 inches in August to October and the balance as snow. It is, however, the warmest zone in the province and early varieties of corn can be matured each year. On account of the nature of the soil and the limited rainfall, the production of good grass crops is more of a problem than to the north or east of this zone."

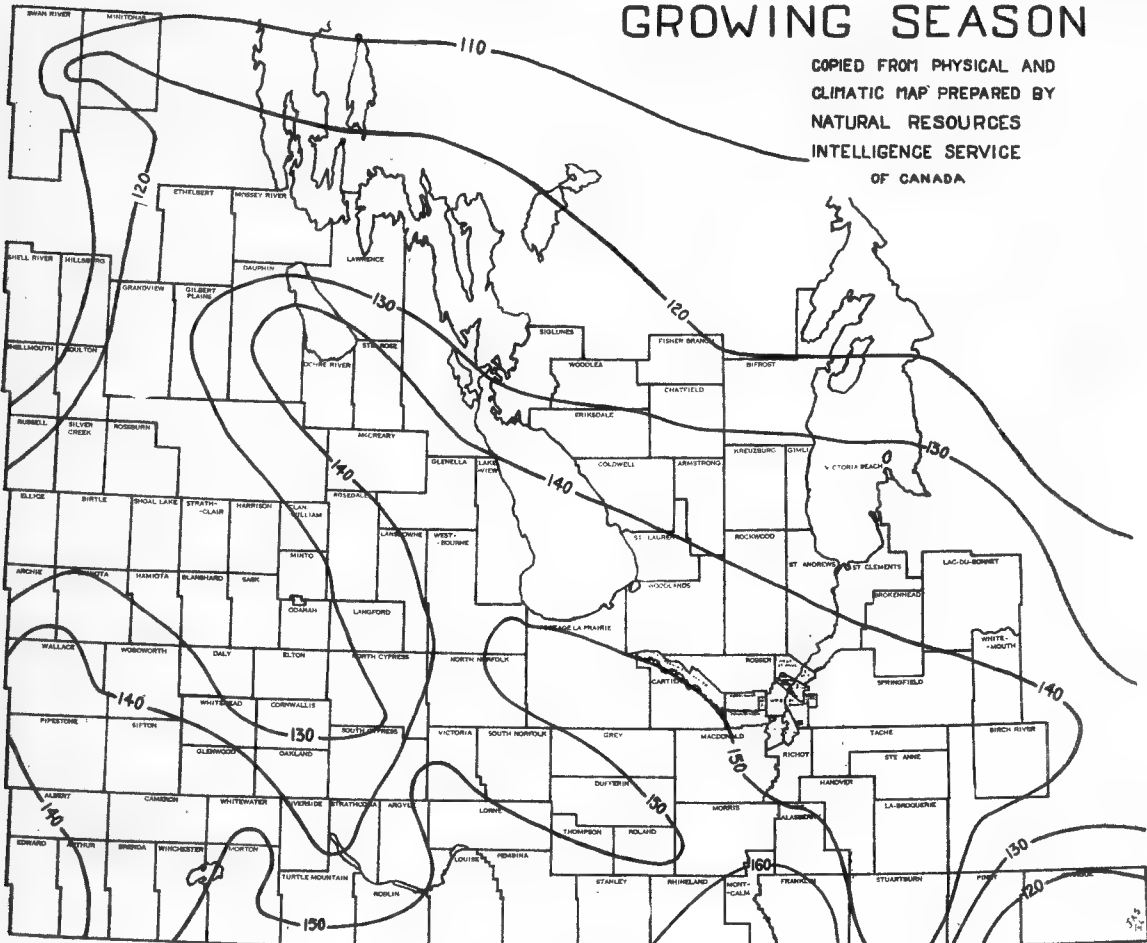
## 3—Riding Mountain Wash

"This area runs along the eastern foot of the Riding Mountains and includes the districts known as the Eden and the Dauphin districts and contains 900,000 acres.



## AVERAGE LENGTH OF GROWING SEASON

COPIED FROM PHYSICAL AND  
CLIMATIC MAP PREPARED BY  
NATURAL RESOURCES  
INTELLIGENCE SERVICE  
OF CANADA



MAP No. 8

The soil is very varied and consists of the following types:

- "(a) The rich eroded material washed from the Riding Mountains.
- "(b) Lacustrine deposits of sandy loam, beach sand and gravel and material washed by water along the shores of the old glacial lake.
- "(c) Alluvial deposited material, both sand and silt in small areas.
- "(d) Swampy and peat soil in somewhat limited areas.

"The underlying rock is cretaceous shale and sandstone in the west, and limestone in the east. The topography is level to undulating and hilly, the hilly land being at the foot of the Riding Mountains. The elevation is 900 to 1,400 feet, and the drainage is good except where interfered with by the beach ridges which have resulted in local swampy conditions. The water supply as a rule is very good except in a very small section. It is watered by numerous streams, and artesian wells are obtained in the east by drilling down to limestone.



"The rainfall is below the average of the province for the early summer months, above the average for July and below the average for the remainder of the season. The average annual precipitation is 17.3 inches, of which 8.4 inches fall in April to July, 5.1 inches fall in August to October and the balance as snow. The temperature is relatively warmer than the average of the province, and it is more erratic than in the two previous zones. The climate is such, however, that all classes of farm crops can be produced."

#### 4—*Swan River Valley*

"The Swan River Valley is situated between the Duck and Porcupine Mountains and is a gradual incline from east to west. This zone comprises about 450,000 acres.

"The soil is somewhat varied, but is chiefly glacial till on the mountain slopes and drift material modified by lacustrine and alluvial sand, silt and clay in the valley. Some swampy land exists in the eastern portion of this zone. The agricultural land in this zone is very fertile. The underlying rock is shale in the west, sandstone in the centre and limestone in the east. The topography varies from hilly in the north and south to a level valley plain in the centre and east. The elevation of the valley is 900 to 1,400 feet, with the adjoining mountains rising in the north and south to 2,400 feet. The drainage on the whole is good except where beach ridges interfere with the drainage on the eastern plain. The water supply is excellent, both from mountain streams and wells, but in the western portion some of the water is brackish.

"The rainfall, though light in the early spring and fall, is considerably above the average of the province from June to September. The average precipitation is 19 inches, of which 9 inches fall in April to July, 5.6 inches in August to October and the balance as snow. The temperature is relatively low and a fair amount of rainfall together with the low summer temperatures make this an ideal grass country. It is subject to occasional frosts and wheat is sometimes frosted.

"The native vegetation was timber and scrub except for a very small area of prairie in the extreme western portion of the valley."

#### 5—*The Northern and Eastern Zone*

"This zone extends from the eastern side of the above zones to the Ontario boundary. It comprises 13,650,000 acres approximately and is a flat almost unbroken expanse except for the depressions which hold innumerable lakes.

"The soil is boulder till modified by lacustrine action and gravel deposits, with a considerable area of peaty soil; while some of the land is very good, much of it is unfit for general farming on account of being stony, gravelly or peaty. Only a small percentage of this area is under cultivation. The underlying rock is limestone in the west and granite in the east. This granite outcrops in some places where the drift material is shallow. The topography is flat and the land slopes northward at the rate of about 1 foot per mile. The elevation varies from 700 to 1,100 feet, the highest land being in the southeast. The drainage on the whole is poor, and the water supply is fairly good. In the extreme southeast there is a variation from the remainder of this zone.

"The rainfall in this zone is comparatively low during the months of April to July, but is much above the average of the province for the fall months of August to October. The average annual precipitation is 19½ inches, of which 8.1 inches fall in April to July, 6 inches during August to October and the balance as snow. The temperature is very cool in the spring and fall, and though it is warmest in July, it does not come up to the average of the province in any one month. The low temperature limits the class of crops which can be grown. Grasses thrive, but wheat is often unsatisfactory, and corn is not grown except



under very favorable conditions. The zone is, however, suited to the production of fibre flax on the better soils.

"The native vegetation is scrub and timber intermixed with meadow land and with some tamarac swamps in the eastern portion and with floating bogs in the southeast. It is essentially a hay and pasture region."

#### 6—*The Northern Drift*

"This zone extends from the Riding and Duck Mountains to the Arrow Hills and is divided from the Southern Drift zone by the Assiniboine River. It contains approximately 5,000,000 acres, 2,000,000 of which are in the Duck and Riding Mountains.

"The soil is boulder till traversed by terminal moraines, and dotted with numerous small lakes and sloughs. This till or drift is modified in the extreme south by water action and some slight sand and gravel deposits. As a whole, however, the soil is close textured drift soil, more or less stony, and the underlying subsoil is a khaki clay, resting on cretaceous shales. The topography is rolling and billowy to hilly. The elevation is 1,400 feet to 2,000 feet, with the mountains rising to about 2,400 feet. The drainage is much interfered with by small lakes or sloughs, which cut up the fields to a considerable extent and which cannot be profitably drained. The water supply on the whole is good, although there is some difficulty in securing water in the underlying shale in portions of this zone. The numerous small lakes, however, provide water for the stock and the obtaining of sufficient water is not an acute problem.

"The rainfall in this zone is below the average in the province. The rainfall in June is the lowest in the province, yet the temperature is also low all through the growing season, and hence there is not the apparent shortage of moisture that the rainfall would indicate. The average annual precipitation is 17.2 inches, of which 8 inches falls during April to July, 4.9 inches during the months of August to October and the balance as snow. The temperature here is just about as much below the average of the province as in the Red River Valley it is above the average. While the rainfall is low, the low temperature and relatively low evaporation makes the rainfall more effective. Growth is slow, however, in the spring and it is subject to summer frosts, with the result that in the northern portion of this zone wheat has not been grown to any great extent and oats have been the main cash crop. South of the dotted line on the zone map (No. 9), however, the wheat acreage is larger than the oats acreage and wheat can be grown satisfactorily.

"The native vegetation is scrub and park growth in the north with heavily wooded areas along the banks of the numerous streams, which have cut wide channels through this zone. In the south, however, the native vegetation was originally prairie and park growth. The uncultivated land found in this zone is rapidly assuming a park-like aspect."

#### 7—*The Southern Drift*

"This is a continuation of the northern drift zone, being of similar formation. It is divided from the northern drift by the Assiniboine and it extends from the Tiger Hills and Pembina Mountains to the Turtle Mountains. In this zone there are approximately two million acres. The soil is glacial drift, averaging 15 to 30 feet thick, underlaid by cretaceous shale. It is traversed by several moraines, which in some places form gravelly hillocks and stony ridges. It also contains some excellent farming land, particularly in the eastern portion. The topography is gently undulating to rolling and hilly, and the elevation is 1,300 to 1,800 feet, with the Turtle Mountain in the extreme southeast rising to 2,500 feet. The drainage on the whole is good and in most places a plentiful supply of water can be secured. In other places, however, wells dug into the underlying shale give brackish water.



# MANITOBA AGRICULTURAL ZONES

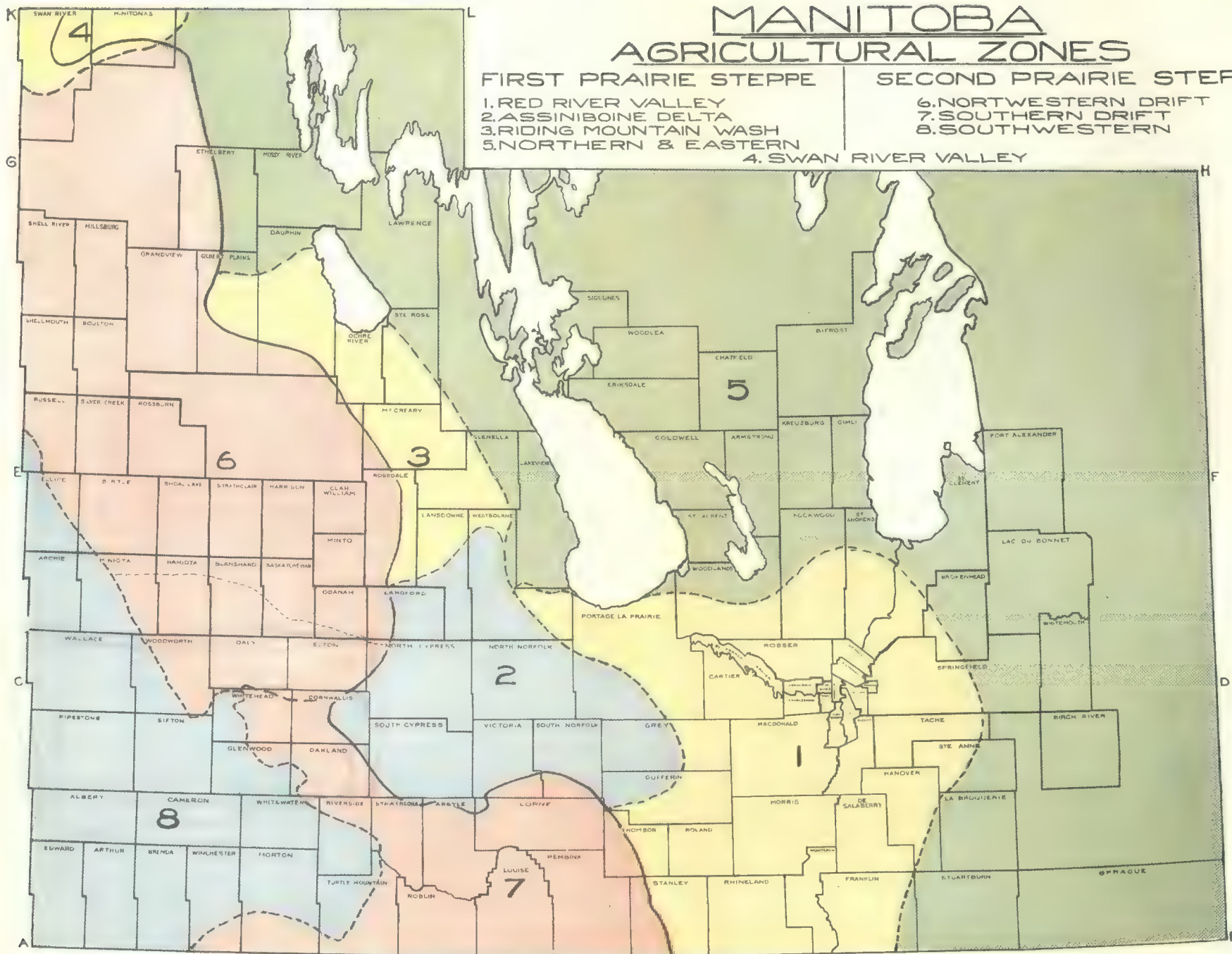
## FIRST PRAIRIE STEPPE

## SECOND PRAIRIE STEPPE

1. RED RIVER VALLEY
2. ASSINIBOINE DELTA
3. RIDING MOUNTAIN WASH
5. NORTHERN & EASTERN

6. NORTHWESTERN DRIFT  
7. SOUTHERN DRIFT  
8. SOUTHWESTERN

#### 4. SWAN RIVER VALLEY



MAP No. 9







"The climate in this zone compares very favorably with the other zones in Manitoba. During April, May, June and August the rainfall is about the average of the province, although it is relatively dry in July, September and October. The average annual precipitation is 18.5 inches, of which 9.5 inches fall during April and July, 5.2 inches during August to October and the balance as snow. The temperature here is warm in the spring, comparatively warm in summer and very warm in late fall. The climate in this zone does not present a peculiar problem as both rainfall and temperature are favorable. There is, however, relatively more evaporation than in the Red River Valley.

"The native vegetation was originally prairie with fringes of scrub on the banks of the streams and timber on the face of the Pembina and Turtle Mountains. The Tiger Hills were also more or less covered with scrub and timber growths."

*S--The Southwest or Souris Plains*

"This zone lies west of the Arrow Hills and Turtle Mountains and extends to the western and southern boundaries of the province. It was formerly known as the Souris Plains and was at one time covered by Glacial Lake Souris. It contains about three million acres.

"The soil is modified drift with some sand deposits and dune sand adjoining the Assiniboine. This zone was considered by early explorers to be a desert, but after the prairie was broken up it produced grain crops for many years which brought fame to the district as a wheat-producing area. The underlying rock is cretaceous shale with some soft coal deposits. The topography is level to gently undulating, and the elevation is 1,400 to 1,700 feet. The water supply is variable. Good water in plentiful quantities can be secured in some districts, but in many places the difficulty of getting a plentiful supply of water limits the number of livestock which can be kept.

"The rainfall in the southwest, although above the average of the province for the month of April, is lower than the average of the province for the other months of the growing season. The average annual precipitation is 17.4 inches, of which 8.5 inches fall during April to July and 4.5 inches during August to October, and the balance as snow. The temperature here is high in the early spring, but it falls slightly below average for the month of June and then slightly increases up to the month of September, when it again falls in the month of October. While the temperature is not as high in the growing season as in some of the other zones, yet the low rainfall, together with the high evaporation and persistent winds, make moisture conservation particularly acute.

"The native vegetation was originally prairie, the Souris Plains being known as 'The Short Grass Country.' "



*Type of Farming, Rotations, Crops and Varieties recommended by the Field Husbandry Department of the Agricultural College for the Agricultural Zones.*

Type of Farming	ROTATIONS		Grain Crops Crop Variety	Hay and Pasture Crop Kind	Intertilled Crops Crop Variety
<i>Red River Valley</i> Mixed Grain Dairy	A	B	Wheat: Mindum Ruby Garnet Marquis Banner Victory O.A.C. 21 Barley: O.A.C. 21 Rye: Can. Thorpe Flax: Winter Peas: Premoist Arthur	Grasses: Meadow fescue Western rye Clovers: Alfalfa Sweet Clover	Corn: N.W. Dent Man. Flint Roots: Turnips Mangels
			Wheat: Marquis Garnet Ruby Mindum Rye: Winter Spring Barley: O.A.C. 21	Grasses: Brome Western rye Sweet clover Clovers: Alfalfa	Corn: N.W. Dent Man. Flint Oats: In 2-drill units
			Wheat: Ruby Garnet Marquis Victory Banner Golden Rain O.A.C. 21 Premoist Rye: Winter Spring Arthur Peas:	Grasses: Western rye Meadow fescue Brome Clovers: Alfalfa Sweet clover	Corn: N.W. Dent Sun- flowers Mammoth Rus. Turnips Mangels
<i>Assiniboine-Delta</i> Grain and Livestock			Barley: O.A.C. 21 Golden Rain Banner Ruby Garnet Marquis Premoist Arthur	Grasses: Meadow fescue Timothy Alfalfa Clovers: Red Clover Alsike	Sun- flowers: Mammoth Rus. Corn: N.W. Dent Man. Flint Roots: Turnips Mangels
<i>Red River</i> Mixed Livestock					



Type of Farming	ROTATIONS		Grain Crops Variety	Hay and Pasture Crop Kind	Intertilled Crops Variety
Northern and Eastern Livestock Mixed Dairy	A	B	Crop	Hay and Pasture Crop Kind	Intertilled Crops Variety
	1. Grain and seed down. 2. Grain, hay and break. 3. Clovers, potatoes, pasture or hay land on balance or rough land. 4. hay land on balance or rough land.	Range land or wild hay on balance of farm.	Oats: Banner Victory Gold Rain Barley: O.A.C. 21 Rye: Flax: Premost Fiber: Peas: Arthur	Grasses: Meadow fescue Western rye Brome Alfalfa Clovers: Red clover Alfalfa Sweet clover	Sun-flowers: Mammoth Rus. Roots: Turnips Mangels
Northern Drift Grain in South Livestock in North Dairy	1. Break and fallow or sunflowers and roots 2. Grain. 3. Grain and seed down. 4. Pasture. 5. Hay provided by sloughs.	1. Fallow 2. Wheat 3. Wheat and seed down clover. 4. Pasture and plow down. 5. Grain. 6. Grain	Oats: Banner Victory Gold Rain Wheat: Garnet Ruby Barley: O.A.C. 21 Rye:	Grasses: Western rye Meadow fescue Alfalfa Clovers: Sweet Clover Red Clover	Corn: N.W. Dent Sun-flowers: Mammoth Rus. Roots: Turnips Mangels
Southern Drift Grain Mixed	1. Break and fallow 2. Wheat. 3. Corn or oats in 2-drill units. 4. Wheat. 5. Oats or barley and seed down. 6. Hay or pasture.	1. Fallow or break. 2. Wheat and sow sweet clover. 3. Oats on spring plowing in 3-drill units. 4. Wheat and seed down. 5. Pasture or hay.	Wheat: Mindum Garnet Marquis Winter Spring Banner Oats: Victory Barley: O.A.C. 21	Grasses: Western rye Brome Clovers: Sweet clover Alfalfa	Corn: N.W. Dent Sunflowers: Mammoth Rus.
	1. Fallow, corn if needed. 2. Wheat. 3. Oats in 3 or 2-drill units 4. Wheat and sow sweet clover. 5. Pasture or seed alfalfa and brome grass 1 to 1 years	1. Fallow. 2. Wheat and sow brome 3. Brome for hay. 4. Break and backset. 5. Wheat. 6. Corn. 7. Wheat or oats and seed down 8. Sweet clover	Wheat: Mindum Garnet Marquis Winter Spring Banner Barley: O.A.C. 21 Oats: Rye:	Grasses: Brome Western rye Clovers: Sweet clover Alfalfa Annual Forage: Sudan grass Proso millet Hungarian millet	Corn: N.W. Dent Man. Flint
Southwestern Grain Livestock					



## Economic Factors in Land Settlement

"The principle of inducement operates in agriculture as in industry."—R. T. Ely.

People these days cannot be induced to farm unless they are adequately rewarded for their labors. If a nation wants farmers it must reward them fairly for their services. If the rewards from farming and the social attractions of rural life do not compare favorably with urban life and industry, farmers' sons cannot be criticized for leaving the land, neither can capital and labor be blamed for remaining where returns are higher and more sure. It is understood perfectly well that until after the opening of the present century men, women and children worked willingly and often cruelly without money and without price for the purpose of developing out of nature's raw material a home of their own. Many of our later settlers are still doing this, but in the main farmers now reckon their income in terms of cash.

If farming were a profession engaging but a few thousand people we might afford to pass over its economic and social problems, but it is our largest industry, and it is a matter of grave public concern that farmers be prosperous, and that the industry expand. In the United States, in England, New Zealand and Australia we hear of agrarian problems that command the attention of the whole nation. That Canadian agriculture is as well off if not better than the agriculture of other nations we sincerely believe. But there are certain unfavorable economic conditions under which the Manitoba farmer along with his Canadian brothers labor, and we must face them squarely if we are to develop an agricultural policy which will settle our unused lands and have our settlers prosper. These economic factors may be grouped under five main headings: the price level of farm products, the cost of production, the marketing of farm products, transportation, and agricultural credit. Not all these factors affect the Manitoba farmer adversely. In some he has a distinct advantage, but whether they are favorable or not they must be considered in analyzing carefully the economic status of Manitoba agriculture.

### *The Price Level of Farm Products*

The price level of farm products determines to a large degree the expansion of farming into new areas. When prices are favorable new land is brought under cultivation. It may be poorer land than the average, but favorable prices induce and sustain settlement. When prices fall not only does the expansion into new areas cease, but much abandonment takes place in the newly settled districts.

A price level favorable to the agricultural industry existed during the latter years of the war, and for about two years after the cessation of hostilities. It induced many returned men and others to farm, but they had no sooner bought their land and equipment when a slump in prices arrived.

This agricultural depression was the result of the decreased purchasing power of European consumers, coupled with relative over-production brought about by war-time expansion of the farming industry.

Canadian agriculture, with that of Australia, South Africa and the United States, felt the staggering effect of collapsing European demand in a sudden fall of all agricultural commodity prices. If the fall in the prices of farm products had borne any reasonable relation to the price of commodities the farmer buys, agriculture would have probably adjusted itself on individual farms in a satisfactory way to meet the crisis. But with the purchasing power of the farmers' dollar 15 per cent. to 20 per cent. below its previous value and production costs increased, a general and far-reaching depression could not be avoided.

In 1919 the prices of the farm products in Canada were 134 per cent. above their pre-war level; in 1920, 90 per cent. above; in 1921, 37 per cent. above; in 1922, 8 per cent. above, and in 1923, 7 per cent. below.



No industry, least of all farming, could meet such a sudden collapse in prices without serious consequences. During the war years Canadian farm crop prices were relatively higher over their pre-war average than the United States prices. Farm prices in Canada reached their peak the year after the war (1919), when they were 134 per cent. above the pre-war average. United States farm products reached their peak the same year, being 115 per cent. above pre-war prices. (1)



One Farmer's Idea of Diversification

The bottom of the depression was reached in 1923, with all Canadian farm crops 7 per cent. below the pre-war average price, while United States crop prices had already reached their lowest in 1921, being at that time 19 per cent. above the pre-war average price.

Price relationships are difficult to compare, however, on account of many factors, not the least of which is the difference in method used by the two countries in making their index number of prices.

It is sufficient to realize that the Canadian farmer in general was subject to a widespread depression caused by low prices, which hit farmers in all countries.

Just what the actual effect of the recent depression was with respect to abandonment of farms is hard to say. In Manitoba 7.7 per cent. of the present unused land in organized areas was once farmed. How many of the farms now occupied were abandoned at one time during the depression, no one actually knows.

What can be safely said is, that a considerable amount of the abandoned farm land is in disuse on account of the recent decidedly unfavorable price level of farm products. The rapid deflation in prices of farm products fell on an industry, expanded during the stress of war-time production on the basis of high-priced land and equipment. With the cessation of hostilities, manufacturing and other industries met the economic depression by shifting to the production of ordinary consumers' goods, stocks of which had been depleted during the war. As a result, a business boom, especially in the building trades, existed in most countries, more especially in the United States. During this period, 1922, it is estimated by the

(1) G. F. Warren and F. G. Pearson. The Agricultural Situation, table XXX., page 65. For Canada, table XXVII., page 59.



United States Department of Agriculture, 1,120,000 persons left the farm for the cities. Of the habitable houses on farms 7.3 per cent. were vacant in 1922. (1)

The agricultural industry meets price deflation usually in two ways: First, as shown by the above, exodus to the cities. This may bring some relief through decreased production, but leaves an increased tax burden on the man who stays on the farm. Second, the farmer may lower his standard of living, but if he stays on the land he must produce even though he produces at a loss. By means of the labor of his family and longer hours for himself, he can maintain production for a time, but at a great cost to himself and rural life in general.

Self-sustaining farmers, even on the poorer lands, who had a few cows and poultry or bees, usually fared better. On the poorer lands that were poorly farmed, even on better lands where grain farming alone was expanded during the war, considerable abandonment took place.

In the inter-lake area many abandoned farms were seen, where city artisans had started farming during the war, only to succumb during the depression of 1922 and 1923.

Another effect on the land problem of over-stimulated production was the sale of many farms in settled prosperous areas at high prices. Here, again, the post-war depressions caused considerable abandonment on account of inability to meet yearly payments on high capitalization. The problem was overcome in some instances by the previous owners arranging for a more equitable price with corresponding terms. In these cases farmers were kept on the land and the original owners were as well off, or better, than if they had foreclosed and sold to new settlers.

If time were no element in the present situation the Manitoba farmer would have little to fear. Industrial and urban populations are increasing with unprecedented rapidity; far faster than rural populations and the world population is growing. Better and more intensive agricultural practices are enabling part of the added demand for food products to be supplied without extension of farm lands, but in time more land is going to be needed. We may expect that time will bring economic conditions that will justify settlement of a considerable portion of the more favorably located unused lands of the Dominion. The problem, however, is to stipulate what shall be done in an immediate situation. In other words, time is a serious element.

It is apparent that, generally speaking, the better soils of the province in nearly all sections (save for occasional stretches of heavy soil in need of drainage) have already been taken and that it is the problem of settlement on the poorer lands and the maintenance of the settlements already existent upon such lands that is the pressing problem.

The solution would seem to lie in the direction of disseminating information to the man on the land so as to provide balanced production, not only on the individual farm, but in the agricultural output of the nation. There should be a greater element of self-sufficiency in all Manitoba farms. It was observed during the depression that self-sustaining farmers weathered conditions best, and re-acted most quickly to the more favorable prices of the last two years.

To be self-sufficient, or more nearly so than is now common on the farms of the province, a knowledge of a greater number of farming practices is necessary, than is the case under a system of grain farming. The farmer needs to know a bit of gardening, fruit growing, dairying, stock raising, etc., if he is to perform the tasks involved in self and family maintenance. In other words, it is a more complex job than grain farming and requires greater and more diversified training.

To advocate such a type of farming may seem to some like advocating a return to older and obsolete methods, but such a system though necessary during the

(1) H. C. Wallace, Annual Report of Secretary of Agriculture, U.S.D.A., page 8, 1923.



## COST OF PRODUCTION

initial settlement of the less fertile lands, will give way later to a more specialized type of agriculture. One can do little, however, producing for a specialized market with only an acre or two under the plow, but these same acres under the plow with pasture to supplement them will supply most of the food a family needs, leaving a necessary minimum of cash outlay for clothes, etc. This is an exceedingly important item in beginning settlement, for the settlers do not in the vast majority of cases move on to the land with much spare cash.

### *Cost of Production*

The cost of production is determined by many factors, not the least of which is the degree and skill of organization and management that the individual farmer uses in his own business. There will always be farmers whose costs will be higher than market prices, despite favorable tariffs and bountiful yields. The personal factor is the important one, but it eludes measurement. It can be stated, however, that cost of production studies have shown that the Manitoba farmer produces more cheaply than his American neighbor. Studies in cost of production have been made by Canadian and American authorities and their published results bear the following relation:

Cost of Wheat Production

		Net Cost Per Acre	Yield Per Acre	Cost Per Bushel
North Dakota and Minnesota (1)	1913	8 44	7.65	.72
	1923	10 76	10.03	1.20
Manitoba (2)	1913	7.65	19.2	.40
	1923	10.03	12.3	.81

These costs do not include the rent of land. If interest for money invested in land were considered, the Manitoba farmer would be still better off than the Dakota farmer, for the charges in this connection are about \$1.00 per acre lower than in the States to the south.

During 1922 and 1923 when agricultural depression was at its worst, it is doubtful whether the prices received were sufficient to cover the cost of producing the bulk of our major products, wheat, oats and barley. Cost of production figures compiled by the Department of Economics in the Agricultural Colleges of Manitoba and North Dakota in 1922-1923 bear out this statement. As a result of this situation there was a considerable shift into more diversified farming to provide for wider sources of income and also to provide for its more even distribution during the year.

### *The Marketing of Farm Products*

It is a matter of general knowledge that in the last 10 or 12 years the nature of farming methods has undergone a marked change. This change has been most apparent in the visible growth of exportable surpluses in dairy products and honey and to a less marked degree in the production of certain forage crops, such as alfalfa, sweet clover and corn.

The economic depression of 1921, 1922 and 1923 has perhaps hidden the progress made by the province in diversifying its agricultural production. A summary of the livestock statistics for 1926 issued by the Dominion Government reveals, however, the exact situation.

Using the years from 1911 to 1914 as an average, there were 51 per cent. more milk cows in Manitoba in 1925 than there were then; 87 per cent. more beef cattle;

(1) Year Book of the Department of Agriculture, U.S.A., table 63, page 648.

(2) Canada Year Book, 1925, table 55, page 273



## UNUSED LANDS OF MANITOBA

134 per cent. more sheep. In 1924 there were 134 per cent. more hogs, but due to low prices this dropped to an increase of 64 per cent. in 1925.

Manitoba wheat acreage has been reduced 22 per cent., but oats have increased 51 per cent., barley 324 per cent., rye about 550 per cent., flax 134 per cent., peas 218 per cent., hay and clover 215 per cent., alfalfa 293 per cent., fodder corn 268 per cent.

As an indication of the shift into balanced farming the statistics showing honey and butter production are worthy of note: In 1919 Manitoba produced \$270,000 worth of honey. In 1922 despite low prices, \$400,000 worth of honey was marketed. In 1925 this had increased to \$616,068.

The following table shows the development of the Dairy Industry:

### DAIRY CHART

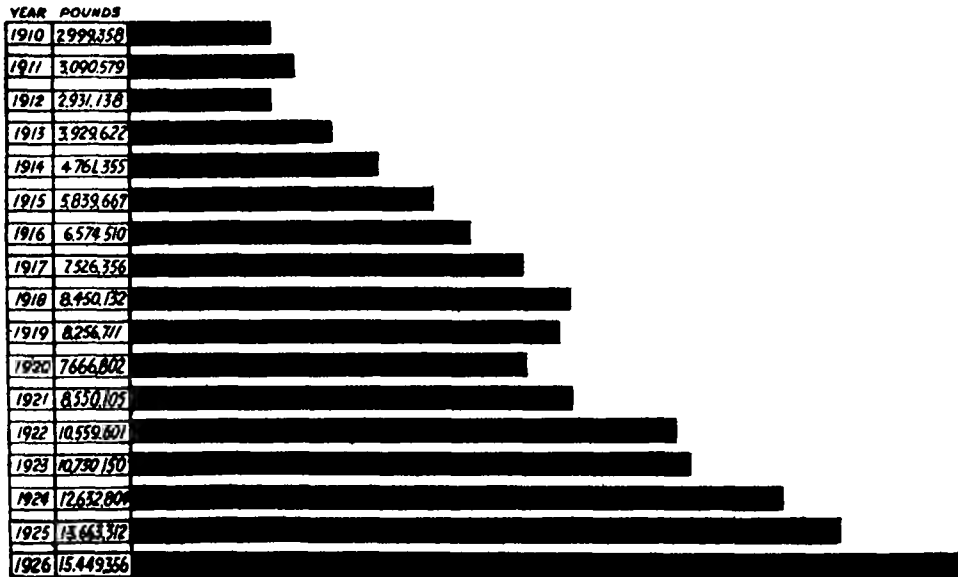


CHART SHOWING ANNUAL PRODUCTION OF CREAMERY BUTTER IN MANITOBA

CHART No. 1

Chart No. 2 shows the changes in the utilization of the land in Manitoba from the war-time production years of 1917, 1918, 1919 to the present year, 1926. The notable features are the decrease in the wheat acreage, and the increase in the acreage sown to barley and grasses.

Map No. 10 shows the acreage cultivated by municipalities. Although these figures are for the years 1917-18-19, this map shows at a glance where the land is most intensively used, and also what districts seem more suitable for certain crops.

This rapid increase in new products brings with it the problem of developing sufficient marketing machinery to dispose of the exportable surplus. We have certain climatic and soil advantages in our grain-growing districts which result in products of superior quality as judged by export demand. In the production of butter, poultry, eggs, honey and bacon we have no such advantages, and in competition with other countries and world markets, we must rely alone on equal or superior skill in production and efficient marketing.

Certain economic problems, largely in the nature of the factors of demand, influence the marketing of these products and can probably be best studied on a commodity basis.



### Grain

There seems to be no major problem in the marketing of grain. There are some minor problems of grading and elevator policy on which producers feel action should be taken. But as no system of marketing is or ever will be perfect some dissatisfaction will always be abroad. Canada has always led the way in efficient grain marketing and the recent growth of "The Wheat Pools" illustrates the freedom and flexibility of the system. The Canadian Co-operative Wheat Producers is the largest producers' co-operative marketing association in the world. It has commanded the support of the majority of the grain growers of Western Canada, and if there are any improvements which should be made in the marketing of our grain, this organization should be able to produce results.

### UTILIZATION OF IMPROVED LAND

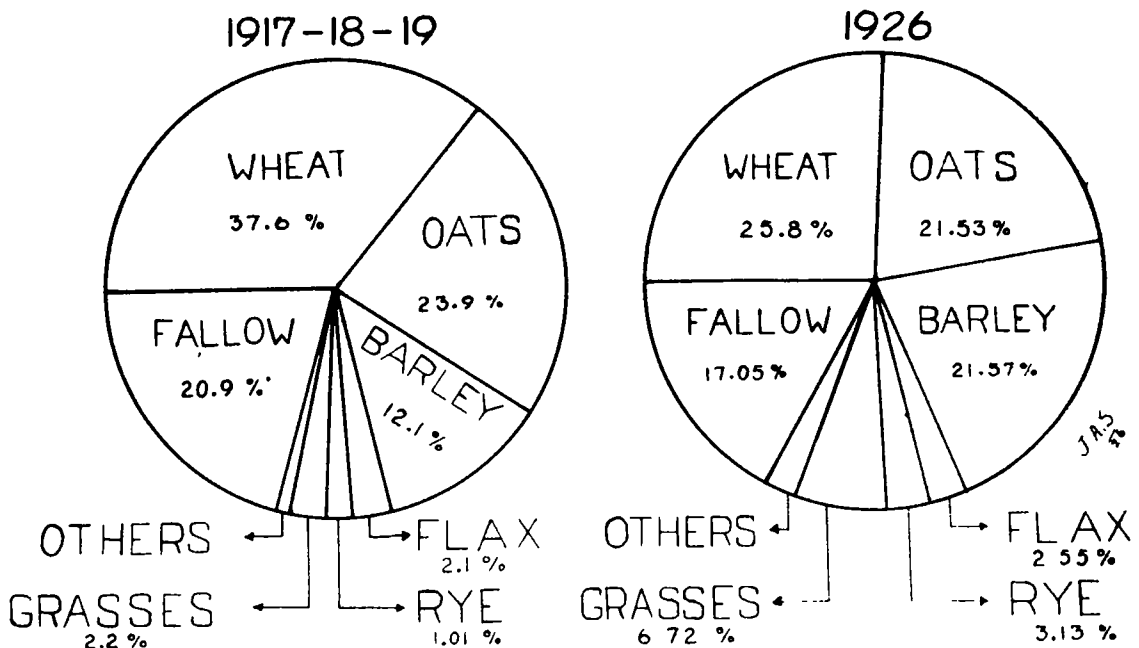


CHART No. 2

### Dairy Products

The market for dairy products is restricted to a certain degree by the United States tariff, and marketing costs to the British Isles. A general expansion of the dairy industry, however, can only proceed with a concomitant development in the market demand for dairy products. Canadian butter comes in competition on the British market with the products of the specialized production of Denmark, New Zealand and Australia. These countries have early heeded the requirements of this market, and have developed national policies of grading, marking and marketing which in comparison with our methods leave us with considerable room for improvement.

Manitoba, as well as other provinces, has made remarkable progress in raising the quality of the butter produced and shipped for export, largely by means of careful cream grading, but the advantages of such improved production are lost by the fact that Manitoba butter is "Canadian Butter" when it reaches England. Unfortunately, not all Canadian butter is high-class. Too often it is mouldy on



reaching its destination, and a considerable amount is just inferior butter. In the summer of 1926 Canada had a splendid opportunity to obtain a larger outlet for butter in England. The English dealers were opposed to the price-fixing methods of New Zealand, and were anxious to obtain Canadian butter, but the Canadian butter did not come up to standard, and the dealers bought elsewhere. This illustrates our dependence on the consumer's demands in foreign markets. The dairy industry in Manitoba and Canada is making rapid progress, but unless a comprehensive national policy of marketing is developed we will always take second place to the countries that have such a policy and our Canadian dairy industry will suffer as the result.



Grain handling facilities in a Manitoba town

### *Meat Products*

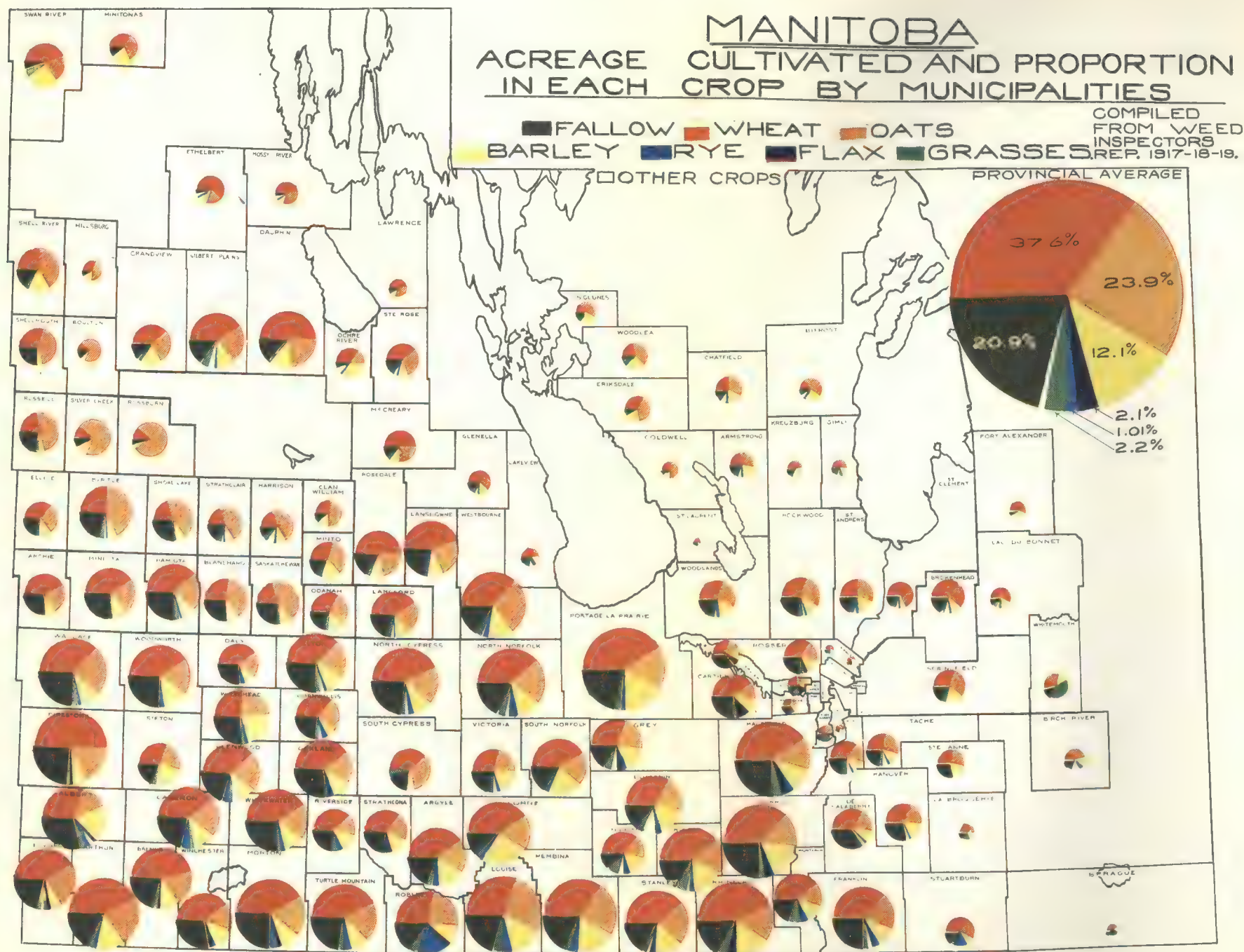
**Beef:** A somewhat different situation is encountered with cattle. Corn products are easily the cheapest carbohydrate food and the Manitoba climate is not highly adapted to corn production. Thus the production of quality beef of highly finished animals is somewhat at a disadvantage, though it must be remembered in this connection that the grand championship at the International Fat Stock Show, at Chicago, has been won by a Manitoba-bred and fed steer.

Barley-fattened beef has a quality of its own. Manitoba with her enormous ability in barley production, can go far in securing great benefit for her farmers who would find the all-important opportunity to engage in winter feeding, and hence find employment of much labor that is wasted at present. With established and genuine merit behind it, "barley beef" might be popularized so as to compete in many markets with the corn-fattened steer.

The fact that barley has been found to do well on wheat-tired soils makes this last suggestion particularly worthy of consideration. Growing this cereal enables the provincial farmer to plan a far superior rotation of crops. It is quite conceivable that nearly as much wheat can be produced, even if much barley is planted, due to the greater efficiency of soils where a longer rotation of crops is practised.

There is still another direction in which the beef industry might be expanded. There has grown up in the United States a considerable business of fattening steers for the market. This practice is carried on in the corn belt and in the Atlantic States adjacent to large consuming markets. Large quantities of feeder steers are annually shipped in to supply the raw material for this industry, and in former





The relative area of land in crop by municipalities from Provincial Weed Inspectors' Reports. While the total acreage differs slightly from the official provincial statistics for the same three years yet it is closely comparable and shows the utilization of land in smaller local units.







years, before the tariff was raised, many of the feeders came from Canada. In fact, shipments from Canada to the United States have persisted despite the tariff. The supply of feeder stuff has grown short in the United States within the last five years and the position of the beef industry is very strong. Much could be done to facilitate the development of such business in the province by investigating the market for such cattle, both in the States and in Ontario. The Big Grass Marsh area, with its abundant grass, might find abundant employment instead of lying idle, could the way be smoothed a bit for getting raw materials to a finishing establishment. Other areas stand to benefit equally.

The tariff here stands as the great stumbling block, but it is the policy of the Republican Party of the United States, despite its high protection leanings (and much the same policy is held by the Democrats) to allow raw materials to enter free. The present tariff on feeder cattle is not excessive, and there is about as much pressure from the corn belt and Eastern feeders to have it reduced, as there is pressure from the other quarters to have it raised.

Manitoba products are at some disadvantage on this market, due to transportation differentials, but feeder cattle are shipped east from Montana in the United States, a distance at least equal to that from Manitoba.

### *Hog Products*

Canadian livestock men have already sensed the situation in the hog products market, and are recommending bacon hogs rather than the lard hogs as the best bet for the Canadian farmer. They have seen that the corn belt hogs have the advantage in lard and pork production, but a select bacon hog can be raised in Manitoba as well as in Ireland and Denmark. The movement in this instance is correct in direction, but it involves the aid of the packer in advertising particular brands of bacon. The work of the Dominion Government, in establishing a strict and excellent grading system, has already enabled Canadian bacon to sell on the British market only a few cents a hundred-weight under the Danish product.

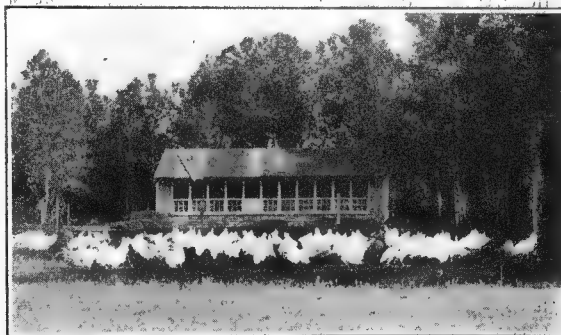
The hog industry has always been subjected to rather violent daily and seasonal price fluctuations. Efforts are being made through the dissemination of impartial market information concerning movements to market to overcome this condition. One of the reasons for seasonal variations in price is the fact that generally a high level in prices for several months will usually stimulate excessive breeding of hogs and thus bring a low level of prices a year or so later. These cyclical price fluctuations constitute the greatest obstacle to stabilizing the swine industry.

### *Poultry*

Considerable expansion can be made in the poultry industry of Manitoba. The reputation for Canadian eggs shipped to Europe is the highest, and the export demand for this product leaves room for greatly increased production.

We still have some things to learn and improve in the shipping of dressed poultry; but the progress made by our co-operative associations in improving the quality and uniformity of our poultry pack has proven of inestimable benefit to the producers.

No farm in Manitoba should be without a well managed and properly culled flock of poultry of at least 100 birds. Many farms were observed on the survey where the poultry flock were paying the grocery bill of an entire family.



A Good Poultry Flock.



### Mutton

Leaving out of account the peculiar difficulties that obstruct the path of the shepherd, all of which can be overcome, it must be recognized that large amounts of good sheep pasture go to waste each year at a time when the United States is importing some mutton and much wool from Australia.

The large tracts of sandy dunes east of Carberry and southwest of MacGregor and the Sandilands or Bedford Hills in the southeast, should be exceptional sheep land. A tract of sandy land just south of Portage la Prairie is equally well suited and these are only a small share of those which might be cited as adapted to sheep raising. All such lands are at present very low in price.

The most hopeful direction which the sheep industry may develop in Manitoba is towards the production of lambs for the nearby American markets, more particularly Chicago. At present we produce only slightly more lambs than home consumption requires. This makes our entry on the American market both



Beauty and Profit.

spasmodic and relatively unimportant from the buyer's standpoint. If the production of lambs were increased, the added volume would facilitate shipments and attract buyers to the Manitoba field. The increase in this direction based on the present demand for lambs, is almost unlimited as far as our ability to meet it is concerned.

One must consider the wool and mutton market in contemplating an increase in sheep raising. At the present time two difficulties face Canadian producers in the marketing of their wool. First, is the Fordney-McCumber Tariff Law (1923), which raised the duty on wool entering the United States. (1) Even with this tariff, wool imports have persisted and were larger in 1925 than in 1924; second, is the preference the Canadian consuming public shows for woollens manufactured in the United Kingdom.

But an increase in sheep raising in Manitoba directed towards the production of market lambs would not greatly add either to the wool or mutton marketing problem. The income from market lambs (about 90 pounds) and the average increase of one and a half lambs per ewe, compare rather favorably with the returns from the wool clip of one mature animal, which probably amounts to 10 pounds at 20c. a pound. In the production of mutton and wool for marketing in such a high protection country as the United States, Canada is always running the chance of coming abruptly up against a tariff increase, which may sadly dislocate the

(1) U.S. Tariff Act, 1922. Wool not improved by admixture with merino or English blood, in the grease, 12 cents a pound; washed 18 cents a pound; scoured 24 cents a pound. If used for carpets, rugs or other floor coverings duty refunded. Other wool, in the grease or unwashed, 31 cents a pound of clean content; scoured 31 cents a pound. (All rates subject to change by President after investigation of cost of production, domestic and foreign).



market. Canadian products of all kinds, however, are produced in large quantities for export, and are all endangered by the tariff hazard. The present hazard in the United States is perhaps not unduly great. There are three other less, but still vital factors, which stand as advantages in sheep raising in Manitoba. Often advantages of this class are lost sight of, but they must receive consideration for at times they mean the difference between profit and loss. They are (1) a market for winter labor, a very important element in Manitoba, where winter seasons are long; (2) as aids in land clearing and (3) as aids in the extermination of weeds, and, as a corollary to this last, the utilization of otherwise wasted roughage. One might easily add a fourth and nearly as important a factor, that of the fertility maintenance though this has not yet proved worthy of much consideration in Manitoba.

There is very little or no danger that Manitoba's contributions would turn the balance to cause an over-production. It must always be remembered that the marketing side must be developed concomitantly with the production side, if strong, smooth progress is to be realized. The future of the sheep industry for the efficient manager appears to be unusually bright.

### *Sugar Beets*

Sugar beet raising in the Red River Valley in Minnesota and North Dakota has been developed to overcome conditions that now wait to be mastered in Manitoba. Climatic and physical conditions are almost identical on the valley lands of both sections, and root crops are known to do exceptionally well in the province. Prices of sugar are about the same in Winnipeg as in St. Paul, Minnesota, with a slightly higher price in the former than the latter, at least at the time of writing.

A number of elements in the situation point to a successful sugar beet culture in Manitoba. Firstly, there is in a system of grain farming much spare labor through the early summer months; secondly, many of the settlers are of nationalities which do well at gardening, but apparently less well at stock raising and dairying. Ukrainians have taken over much of the market gardening lands near Winnipeg, and throughout the province it has been observed that these people are good gardeners. They are hard workers and very often every member of the family works in the field or garden; there is, therefore, a great likelihood that such settlers will be successful.

Sugar beet propagation cannot, of course, be developed prior to the erection of sugar refineries, but the development in North Dakota and Alberta is worthy of study and perhaps emulation.

The great importing countries of sugar are the United States, the United Kingdoms and British India. The American market is practically restricted to Cuban sugar which is given a preferential tariff. Canada is also a heavy importer of sugar, so that the establishment of the beet sugar industry cannot be discouraged from the standpoint of poor market outlook.

Whether or not we can produce as cheaply as the countries from which we now import remains to be proven. They have transportation charges to meet which would not affect us, as we would probably not produce more sugar than the province can consume. Such is the case in Alberta.

### *Garden Vegetables*

Contingent upon the great advances made in the last quarter century in the knowledge of human nutrition, there has been a marked tendency toward a change in the dietary habits of the people on the American continent and the world. This tendency is in the direction of a far larger consumption of vegetables, and



fruits and of milk. The wisdom of our great acreages of cereals and comparatively small acreage of fruit and vegetables is beginning to be somewhat questioned. The position of bread as the staff of life is being weakened by modern discoveries, which designate whiter flour and pastry as the basis of much of the faulty nutrition existent in modern civilization. On the other hand, the vegetable and the fruit supplemented by milk, have come into the limelight as more healthful and perhaps more natural human foods.

Manitoba agriculture is primarily engaged in the production of food and must, whether it will or not, take cognizance of this change in the dietary habits. The consumption of more vegetables and fruits means the consumption of less cereals, which is doubly significant to Manitoba agriculture.

(1) The growing of more vegetables and fruits will tend in some degree, though perhaps not greatly, to lessen the acreage and time to be spent in cereal production. This effect will not be large, for the time devoted to horticulture will be taken from periods now largely idle, such as the growing season for grain between seeding and harvest.

(2) The production of fruits and vegetables fits in with a self-sustaining type of agriculture, which in many parts of Manitoba is vitally necessary to survival and success under present economic conditions. Inasmuch as more fruits and vegetables mean greater health, this turn to horticulture is neither a step backward nor a temporary expedient, but a constructive forward step in human welfare.

The need for self-sufficiency, in which gardening is a large element, can hardly be over emphasized in a situation where the production purely for a specialized market has been so sadly disrupted as during the period since 1920. It was observed on the survey that the ability of Ukrainians to succeed where other nationalities have failed, was due to the former making such remarkably good use of garden products. It was reported that one year's grocery bill for a family of five Ukrainians was in 1925 the ridiculously low sum of \$150.00. There is much to be learned from the methods employed in such cases.

At any rate the settlers on the cut-over, stony, lake erosion phase of soils (described in the introductory sections of the reports on the municipalities of Eastern Manitoba and reports on the Glenella area), will under present economic conditions either make much of their gardens or continue their desertion of the land. This last self-sufficiency item is much more vital on the poorer soils, but can also be used to great effect on all Manitoba farms, save the most successful and specialized.

Happily the abundant produce of Manitoba gardens in 1926, an admittedly poor garden season, proclaims the province as remarkably adapted to this type of production.

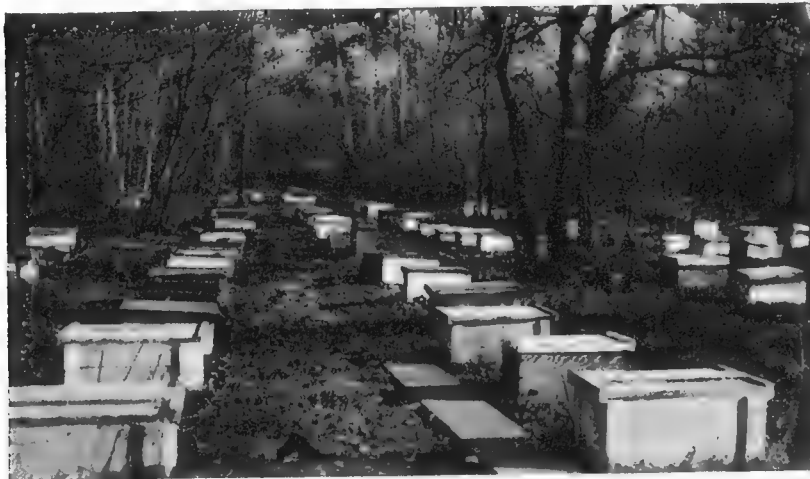
Potatoes do remarkably well in every section (including Swan River Valley and Grand Rapids), but their bulkiness together with the United States tariff restricts them to a local market, except in years of crop shortage in the States, as in 1925, when Canadian potatoes moved over the tariff and freight barrier to the south at considerable advantage to the producer. The limit for the expansion of the potato acreage will have to be carefully probed, for the production of potatoes is very susceptible to price changes, and is limited largely by the growth of the population in Canada.

### *Honey*

To this list of items, especially important for home consumption, honey must be added. Bee-keeping and honey production in Manitoba is carried on under



exceptionally favorable conditions, and even though the season is short, almost unbelievable amounts of honey are gathered by single colonies. The presence of abundant lime in the soil, which is related through the legume or for other reasons, to the honey flow, is at least partly responsible. Inasmuch as practically all the soils of the province are of this calcareous nature, bee-keeping is much favored.



Beekeeping has Proven Profitable in Manitoba.

If honey production in Manitoba keeps increasing at the present rate there will be a serious marketing problem in a few years. Already the dumping of surplus Ontario honey on the Manitoba market is adversely affecting the local producers. Fortunately there has been a great increase in the consumption of honey during the past few years in the prairie provinces and Manitoba apiarists have benefitted thereby. But the producers feel that they must soon seek other outlets if the industry is to develop. Hence, again, only a Canadian wide viewpoint of the orderly marketing of our products at home and abroad will solve the problem.

### *Co-operative Marketing*

The development of co-operative marketing has been one of the outstanding consequences of the agricultural depression. Co-operation is a sound and demonstrated principle that must be inculcated into the basic fabric of our rural life if our agriculture is to be a success. Many of our competitors on the world market such as Ireland and Denmark, have long recognized this principle, and much, if not all, of their success can be attributed to the direct and indirect benefits of co-operative marketing.

Co-operative marketing, apart from the financial benefits which may accrue, but which can never be accurately measured or compared, yields its greatest reward in renewing and invigorating the sources of hope in rural life. It stimulates farmers to develop from within their midst capable leadership around which agriculture may rally and advance to higher attainments in production and marketing through self-help.



## *Transportation*

Closely allied with the factor of market conditions is the question of transportation. It is necessary, however, to give only a brief outline of the transportation system in Manitoba and its effect on land settlement.

In the early pioneer days it was necessary for settlers to haul their products for long distances to the railways over prairie trails and poor roads, but today throughout the greater part of the settled area, the Good Roads Act is operative, and Provincial and Municipal authorities co-operate in the building and maintaining of trunk highways and other roads. There are at present more than 1,800 miles of gravelled road in Manitoba. In addition to this, most of the municipalities have splendid dirt roads, which are kept in order by dragging. Thus the cost of transporting farm produce to market is considerably reduced, and rural isolation almost completely broken down.

The railroads also have been very active in building trunk and branch lines, until the present settled portion is covered with a network of railways. The Canadian National Railway operates in Manitoba 2,561 miles, including 214 miles of the Hudson Bay Railway. The Canadian Pacific Railway operates 1,765 miles. In addition to this the Greater Winnipeg Water District, with its 97 miles of service railway, provides transportation facilities for settlers in the eastern portion of the province between St. Boniface and the Ontario boundary. Several branch lines of the United States railways also penetrate the southern portion of the province, and provide useful links between the Canadian and United States systems.

Freight rates from Manitoba points to the seaboard, or to the Head of the Lakes, are considerably less than the rates from Saskatchewan and Alberta points. The difference in favor of the average Manitoba farmer being from two to six cents per bushel on grain, and from 10 to 20 cents per 100 pounds on livestock. This difference represents a considerable saving to each settler and a similar saving is made on goods shipped in for consumption on the farm.

The completion of the Hudson Bay Railway will make Manitoba a maritime province, but whatever benefits accrue from this new route to the seaboard will be shared by the other two prairie provinces.

## *Agricultural Credit*

The question of agricultural credit is becoming increasingly important, especially in its relation to the settlement and development of land. In the pioneer days, and, indeed, until a few years ago good land could be obtained free or at a very low cost. Only small capital expenditures were necessary, and with the relatively high yields from virgin land the repayment of loans was an easy matter. The cost today of purchasing and equipping a farm is much higher, and as stated above there is not the same rapid increase in agricultural land values, so that farm mortgages are less attractive than formerly.

Dr. Tory, in his Supplementary Report on Rural Credit, 1925 (Page 12), quotes the opinion of successful business men who agree that no business, farming or otherwise, which does not enjoy a monopoly or some form of protection, could prosper while paying 8 per cent. to 10 per cent. for fixed capital and current borrowings, and he concludes his report with the words: "It must be obvious to anyone who gives the question serious consideration that some immediate improvement in methods of agricultural finance is imperative, if Canada is to maintain her place in world agriculture."

The province has made several experiments in the field of agricultural credit but most of the schemes are practically inoperative at present.



### *Cattle Loans*

One of these schemes is generally known as the Winkler Cow Scheme, or officially as the Settler's Animal Purchase Act. Considerable criticism has been directed to this scheme and no new loans have been made for some years. It is admitted by all students of agricultural credit that this scheme is sound in principle, but that economic conditions obtaining at the time of its inception militated against its chance of success, many of the purchases being made at the peak of prices. Numerous districts, especially in the newer settlements, would benefit greatly by a revival of this or the institution of a similar scheme, and with careful administration it could be made self-supporting. Cattle loans of this type, however, should be paid for by a certain portion of the cream check monthly.

### *Rural Credit*

The Act of 1917 established a Rural Credit System, with the Provincial Government virtually a partner in every Rural Credit Society. The infancy of these societies was contemporaneous with the period of rapid expansion, and war time inflation of prices. Not only agricultural credit but credit in all lines of industry and even consumptive credit seemed to forget all economic principles, so that when the depression came some unfortunate incidents brought the scheme into disfavor in many quarters. But here, again, it must be said that the principle of the Act is generally recognized as being sound. If a constructive policy of land settlement and agricultural development is to be formulated it must include the rehabilitation and probably the extension of the Rural Credit Scheme. A closer following of the Raiffeisen principles in the future, and some amendment to provide for an increase of the responsibility of local members would be necessary.

### *Long Term Loans*

The Manitoba Farm Loans Act of 1917 provides provincial funds for the encouragement of agricultural development on a mortgage basis. It would not be contrary to the spirit of this act to have its scope extended so that progressive development loans could be granted settlers who purchase Provincial Government lands or lands held by the Municipalities.

Further, since the Dominion Government owns and controls all the natural resources of the prairie provinces, including a very large percentage of the land, representations might be made to it to establish a scheme of progressive loans to settlers on Dominion land even if unpatented, since the improvements which would be financed by these loans would be security for the loans.

Considerable assistance in settlement and development could also be afforded by the various land and mortgage companies if they could be brought together on a proposal to have long term amortization contracts instead of the usual five-year mortgage. Already many of the mortgage companies and private individuals might be induced to adopt similar policies in return for the Provincial Government's undertaking to publish periodical lists of approved lands offered for sale by individuals and companies who will grant the approved terms.

The factors herein mentioned are not exhaustive, but are the most important in the consideration of Land Settlement and Development.



# Social Factors in Land Settlement

"Many statisticians hold that immigration does not promote growth. From Benjamin Franklin to Francis Walker, students of demography have inclined to the view that there will be just as many people in a country in a given period if immigration is prohibited as there would be if immigration were unrestricted."—Edward Murray East.

## Early Settlement

For two centuries the Northwest Territories were regarded as a sub-arctic region whose furs might be exploited by merchant adventurers. A century ago Lord Selkirk's Colonists made the first attempt at permanent settlement, but it was not until Confederation that the wealth of the soil of Manitoba and the Northwest began to attract attention.

A few scattered settlements had already begun on the Portage Plains, in the Red River Valley, at Morris and Emerson, and west of the Red River towards the Pembina Mountains. Immediately following the close of the Red River trouble and the entrance of Manitoba into Confederation in 1870, we find five years of rapid growth and spreading settlement in spite of all the difficulties of transport, frosts and grasshoppers. In 1870 the total population was less than 20,000, of whom probably ten per cent were white and the balance Indians and half-breeds.

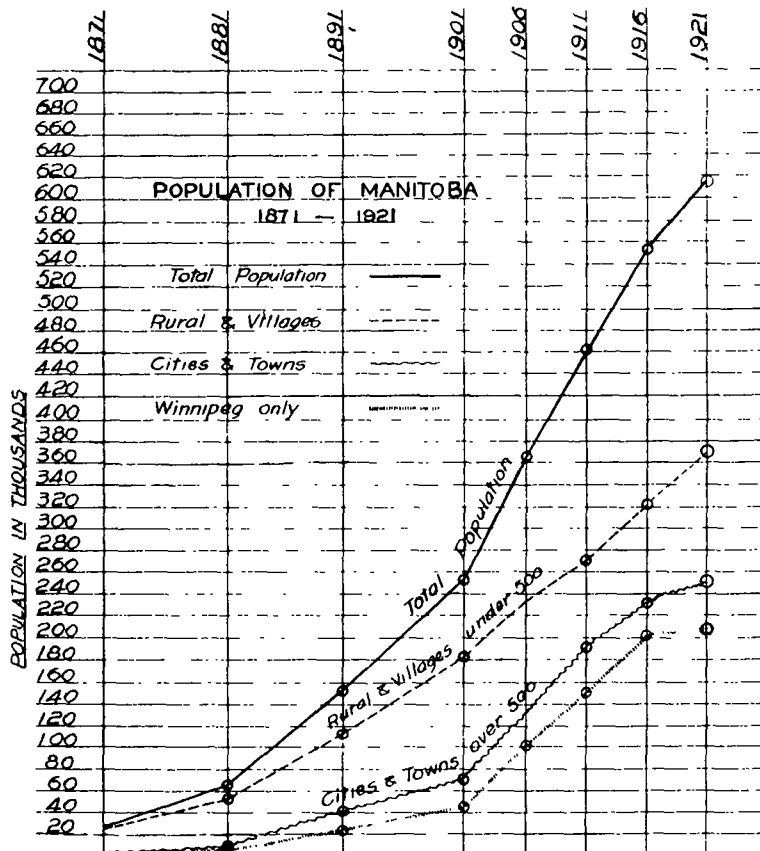


CHART No. 3



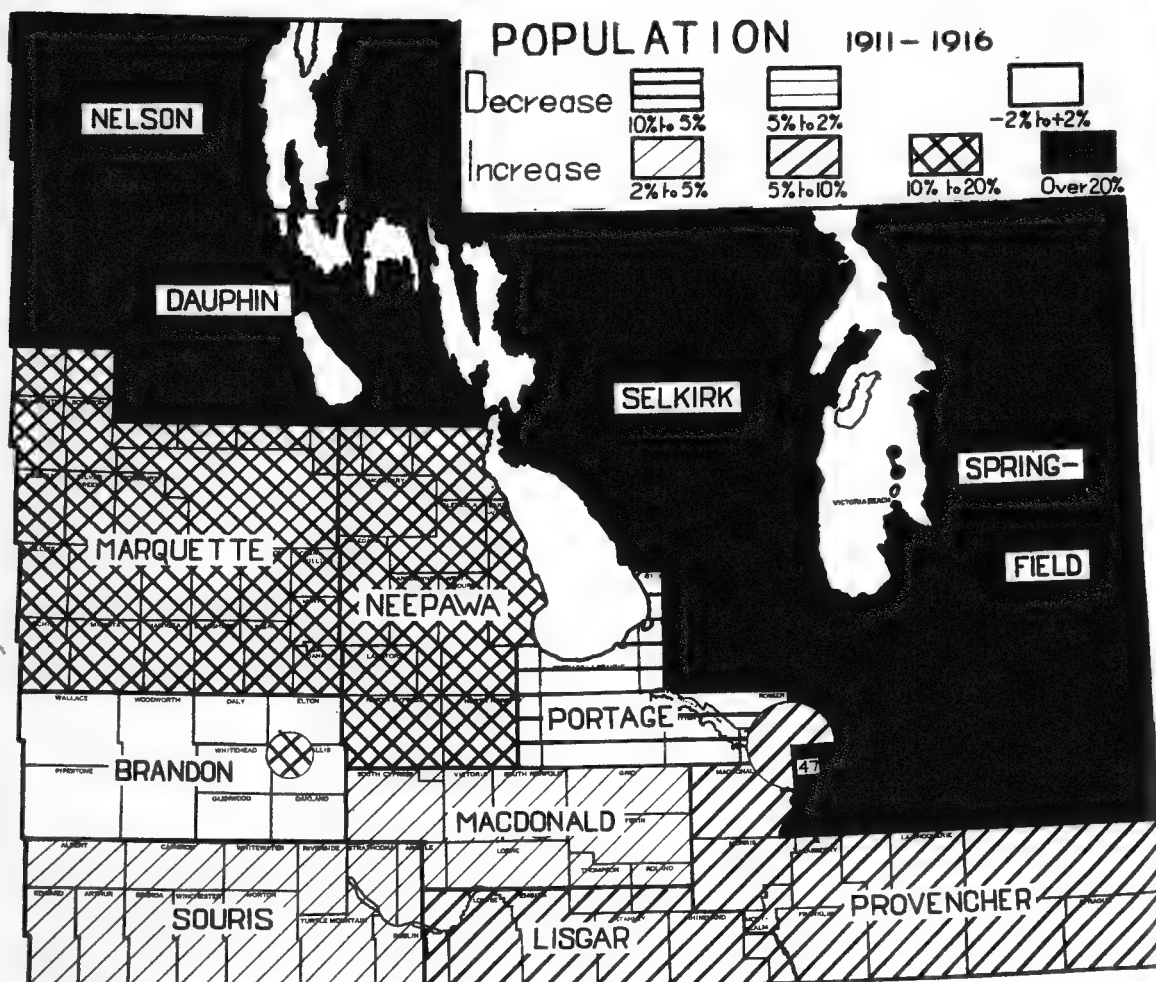
POPULATION

Table No. 2  
*Population of Manitoba for Each Census Year from 1871 to 1926*

Year	TOTAL	Per cent. increase 10 years	Rural	Per cent. of total	Rural per cent. increase 10 years	Rural per cent. increase 5 years	Urban	Urban per cent. increase 10 years	Urban per cent. increase 5 years
1871	25,228								
1881	62,260	146.79%							
1891	152,506	144.95%	111,498	73.11%			41,008		
1901	255,211	67.34%	184,775	72.40%	65.72%		70,436	71.76%	
1906	365,688		227,598	62.23%		23.18%	38,090		96.95%
1911	461,394	80.79%	261,029	56.57%	41.27%	14.79%	200,365	182.46%	45.10%
1916	553,860	51.5%	312,846	56.48%	37.46%	19.70%	241,014	74.53%	20.34%
1921	610,118	32.23%	348,502	57.12%	33.51%	11.40%	261,616	30.56%	8.55%
1926	639,056	15.38%	360,861	56.47%	15.35%	3.55%	278,195	15.43%	6.34%



# UNUSED LANDS OF MANITOBA



MAP No. 11

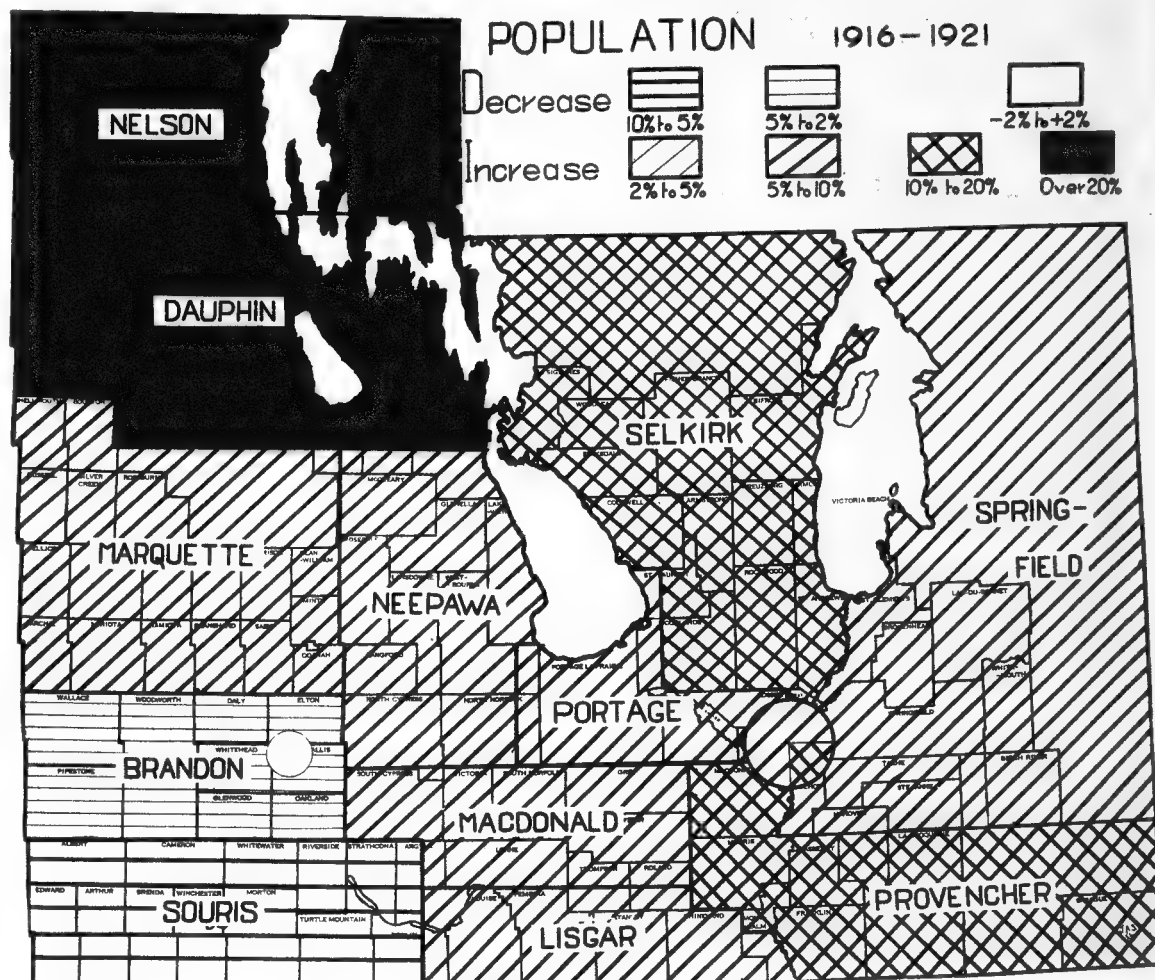
In 1871 census gives the population at 25,228. The favorite locations during the five years, 1871-1875, were along the north side of the International Boundary around Morden and on by Pilot Mound to Deloraine. The Tiger Hills and Boyne River attracted many and the Portage Plains, Gladstone (then called Palestine) and the Little Saskatchewan lands were rapidly settled.

The earliest settlers kept near to wood, water and hay, but soon the open prairie also was dotted with shacks. In 1881 the population had increased to 62,260, of whom 52,992 were engaged in agriculture.

With the coming of the railroad in 1878, connecting Winnipeg by rail with the South and East, Manitoba came into its own, and for 20 years a steady increase in population, both rural and urban, is noted. The total population of 1901 was 225,211, of whom seventy-two per cent. (72%) were rural. In the next ten years the great stream of immigration seemed to tend towards the cities where the population nearly trebled while the rural population did not increase more than fifty per cent. (50%).



# POPULATION



MAP No. 12

In 1921 the total population of Manitoba was 610,118, an increase for the decade of 32.23 per cent. Just a little over a quarter of a million of the population were located in cities and large towns, and about 350,000 in the country and rural villages. As is shown in the accompanying Chart No. 3 and Table No. 2, the rural population in this decade kept pace with the growth of the total population, that is, the increase was about 33 per cent.

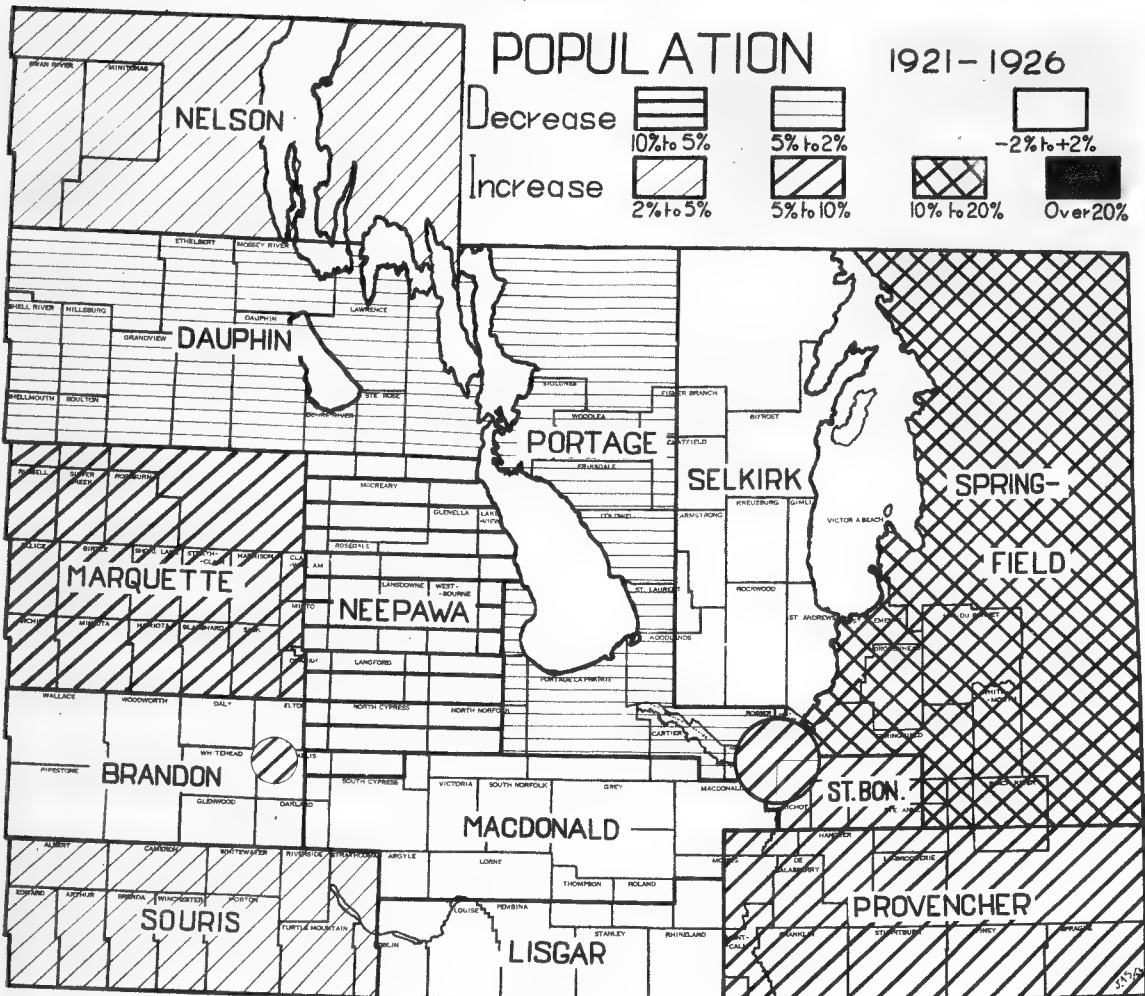
The preliminary census figures for 1926 give a total population of 639,056, with an increase of 15.38 per cent. for the decade, and 4.74 per cent. for the five-year period, 1921-1926. These figures reveal a very remarkable slowing down of the rate of increase.

If the rate of increase of the previous decade had been maintained the population would have been over 703,000 as calculated by the method outlined in Whipple's Vital Statistics (Page 145—2nd edition).

Calculated on a basis of natural increase the population would have been the 1921 figure, 610,118, plus living births, 80,850, minus deaths (exclusive of



# UNUSED LANDS OF MANITOBA



MAP No. 13

stillbirths), 26,698, which would give a total of 664,270, which is 25,214 in excess of our actual population. In addition to this, however, there were in the period between July 1st, 1921, and June 30th, 1926, 75,844 immigrants who gave their destination as Manitoba—this makes a total of 740,114.

The province has, therefore, lost through emigration to other provinces, or to other countries, 101,058 in the five-year period. These facts would seem to indicate that the problem is not wholly one of immigration, but also of emigration, and that to devise means of holding our present population with its natural increase is the first concern.

Three Maps, Nos. 11, 12 and 13, here included, show the changes in the rural population for the last three five-year periods. It is interesting to note that in the first period, 1911-1916, the constituency of Portage la Prairie showed a decrease of 6.74 per cent, while Brandon constituency was practically stationary. The northern constituencies increased very rapidly during this period.

In the second period, 1916-1921, the rate of increase in the north somewhat slowed down; there was steady development in the southeast and central portions, while in the southwest there was a marked decrease in the rural population.



POPULATION

*The Shifting of Rural Population (1)*

Table No. 3

Federal Constituencies	Percentage- Shifting For Five-Year Periods.		
	1911-1916	1916-1921	1921-1926
Brandon	0.00%	+ 4.2%	+ 0.47%
Dauphin	+22.48%	+ 24.0%	- 3.64%
Lisgar	+ 7.88%	+ 6.76%	+ 1.79%
Macdonald	+ 4.02%	+10.00%	+ 0.47%
Marquette	+15.84%	+ 9.96%	+ 8.00%
Neepawa	+11.14%	+ 6.65%	- 6.08%
Nelson	+37.46%	+20.34%	+ 4.75%
Portage la Prairie	- 6.74%	+ 8.17%	- 4.44%
Provencher	+ 8.22%	+11.56%	+ 7.40%
St. Boniface			+ 6.14%
Selkirk	+51.63%	+13.90%	+ 1.11%
Springfield	+41.33%	+ 9.48%	+10.86%
Souris	+ 3.98%	- 6.39%	+ 4.70%
Brandon (City)	+ 9.94%	+ 1.20%	+ 6.66%
St. Boniface (City)	+19.82%	+ 9.87%	+ 6.85%
Winnipeg (City)	+47.28%	+16.33%	+10.53%

Excluding the population of the City of Brandon from the southwest area, there is revealed a decrease in the rural population of 2,298 for the ten year period ending 1921. For the first half of this there was an increase, so that the rate of decrease for the ten years is 2.5 per cent., while the rate of decrease for the five years 1916-1921 was 5.4 per cent.

It is noteworthy that this population movement is parallel to the movement of population across the International Boundary in North Dakota, where in the counties of Cavalier, Towner, Rolette, Pierce, McHenry, Bottineau and Renville there was shown a total decrease in the population of 5,057 for the ten years ending 1920, or a decrease of 5.8 per cent.

In the last period, 1921-1926, the southwest has experienced a return of prosperity which has practically made up the loss of the previous period. The

(1) Corrections necessitated by redistribution have been made.



increase of population in Souris constituency is 4.7 per cent. This return is due in a large measure to a change in farming methods, and to the fortunate circumstance of a succession of good crops since 1921.

The north central portion of the province, especially that area around Lake Manitoba has seen in the last five years a decided decrease in population. In some small sections about 80 per cent. of the farms have been abandoned. Whether the experience of the southwest will be repeated here remains to be seen, but the exodus seems to have halted this current year.

The decrease in population in the areas mentioned are due to many different factors which are simply temporary phases of agricultural development. For example, Lisgar lost population in the period prior to 1911 due largely to the consolidation of farms, for the average size of farms increased from 322 acres to 406 acres, but this area is now one of the most densely populated of rural Manitoba.

In the period ending 1916, the decrease in Portage la Prairie was due to the same phenomenon, and the fact that Brandon constituency remains practically stationary was another manifestation of the same cause, together with the drain of the war. The great decrease in the southwest, in Brandon and Souris constituencies in the period ending 1921 was due partly to farm consolidation and partly to the drain of the war, but most of it was due to a series of misfortunes, drifting soil, Russian Thistle, grasshoppers, saw-flies and adverse weather conditions, which materially reduced the wheat yields in the years 1918, 1919 and 1920. The decrease in the north central part of the province has been caused partly by the economic depression, which fell heavily upon the farmers who had taken up this land during the period of high prices, and partly to the fact that much of the land taken up was sub-marginal land. The re-population of these areas can come about only by drastic changes in methods of farming, requiring perhaps some temporary governmental assistance. Only carefully directed and controlled settlement schemes should be permitted, for only by such means can we avoid a repetition of the same errors costly to both the individual settlers and the province at large.

#### *Density of Population*

The distribution of the rural population throughout the southern portion of Manitoba is portrayed on Map No. 14. This map shows fairly dense settlement in the rural municipalities of Stanley, Rhineland, Stuartburn, Gimli, Ethelbert and other non-English areas, the rate being as high as 15.11 persons per square mile, while in other agricultural sections of the settled portion of the province the rate falls as low as five persons per square mile. The total population spread over the total land area of 231,926 square miles gives a rate of 2.63 for the province

### *National Types*

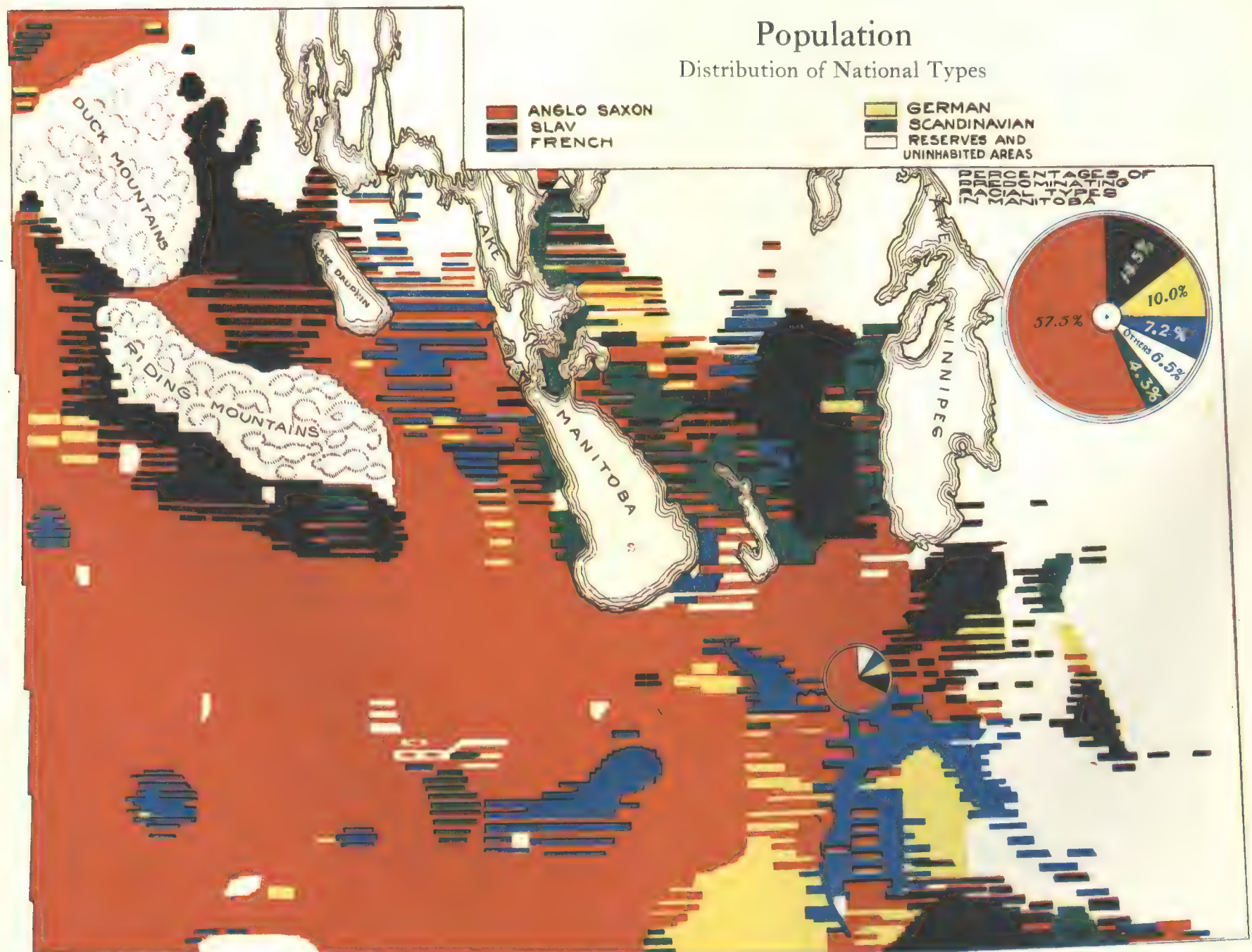
In Manitoba there are more than 40 nationalities, but these may readily be grouped into five distinct types: the Anglo-Saxon type, which may be regarded as including Canadians, Americans, Scotch, English, Irish, etc.; second, the German type, which includes Germans, Dutch, Mennonites, and some Russian-Germans; third, the Slav type, including the Russian proper, Poles, Ukrainians and the southeastern Europeans; the Scandinavian type, including Norwegians, Swede, Dane, Iclander and the French type, which includes the French-Canadian, French, Belgian and Italian. About 57.5 per cent. of the total population of Manitoba in 1916 was of Anglo-Saxon origin; 14.5 per cent. Slav; 10 per cent. German; 7 per cent. French and Belgian; 4.5 per cent. Scandinavian; and the remainder comes from other sources, Jews, Chinese, Native Indians, etcetera. In 1921 the percentages were: English, 57.5 per cent.; Slav, 17.8 per cent.; French, 8 per cent.; German, 6.6 per cent.; Scandinavian, 4.4 per cent.; others, 5.7 per cent.

The non-Anglo-Saxon types are to be found throughout Manitoba, but in the southwestern part, where the Anglo-Saxon predominates, all of these seem to be



# Population

## Distribution of National Types

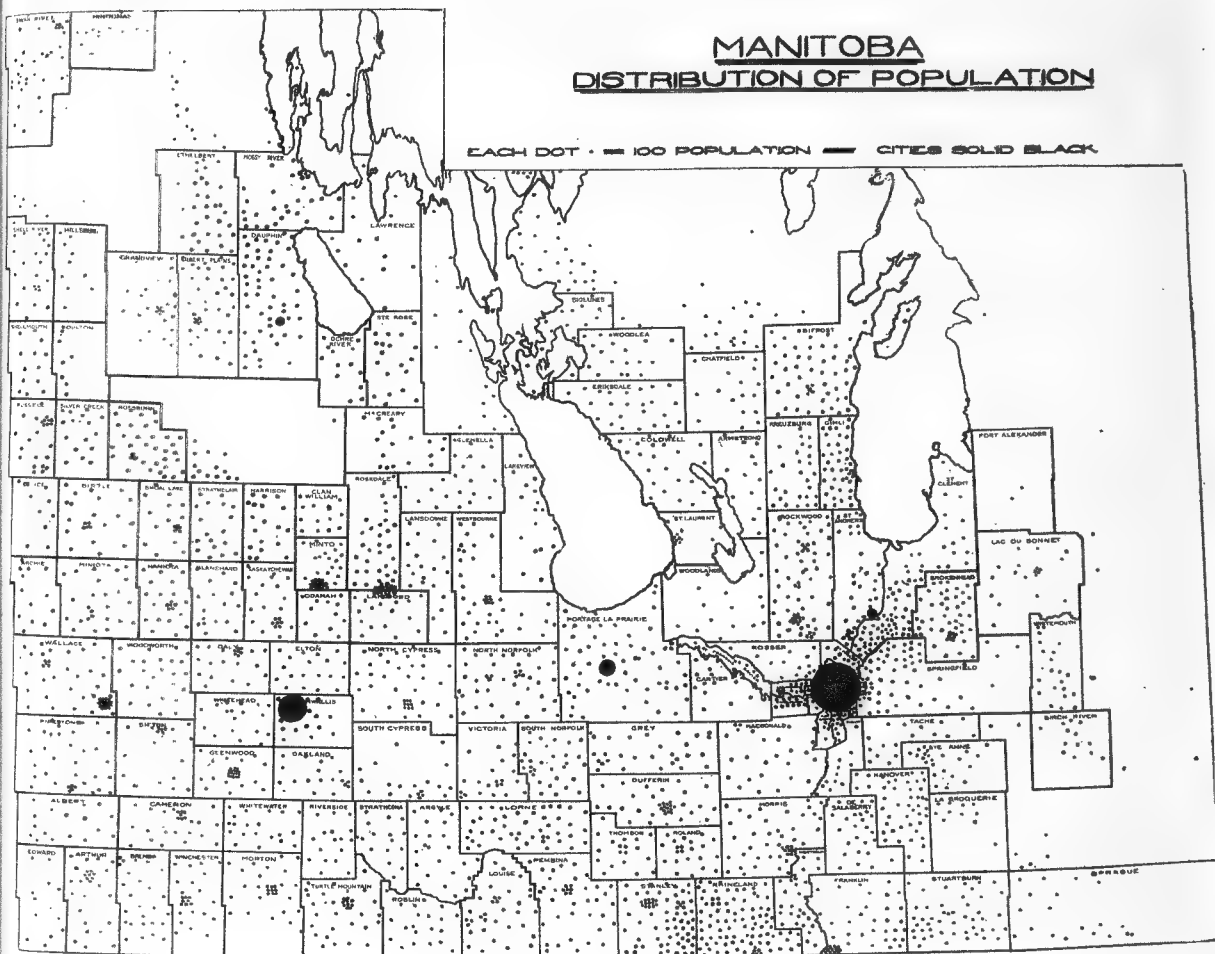


MAP No. 15









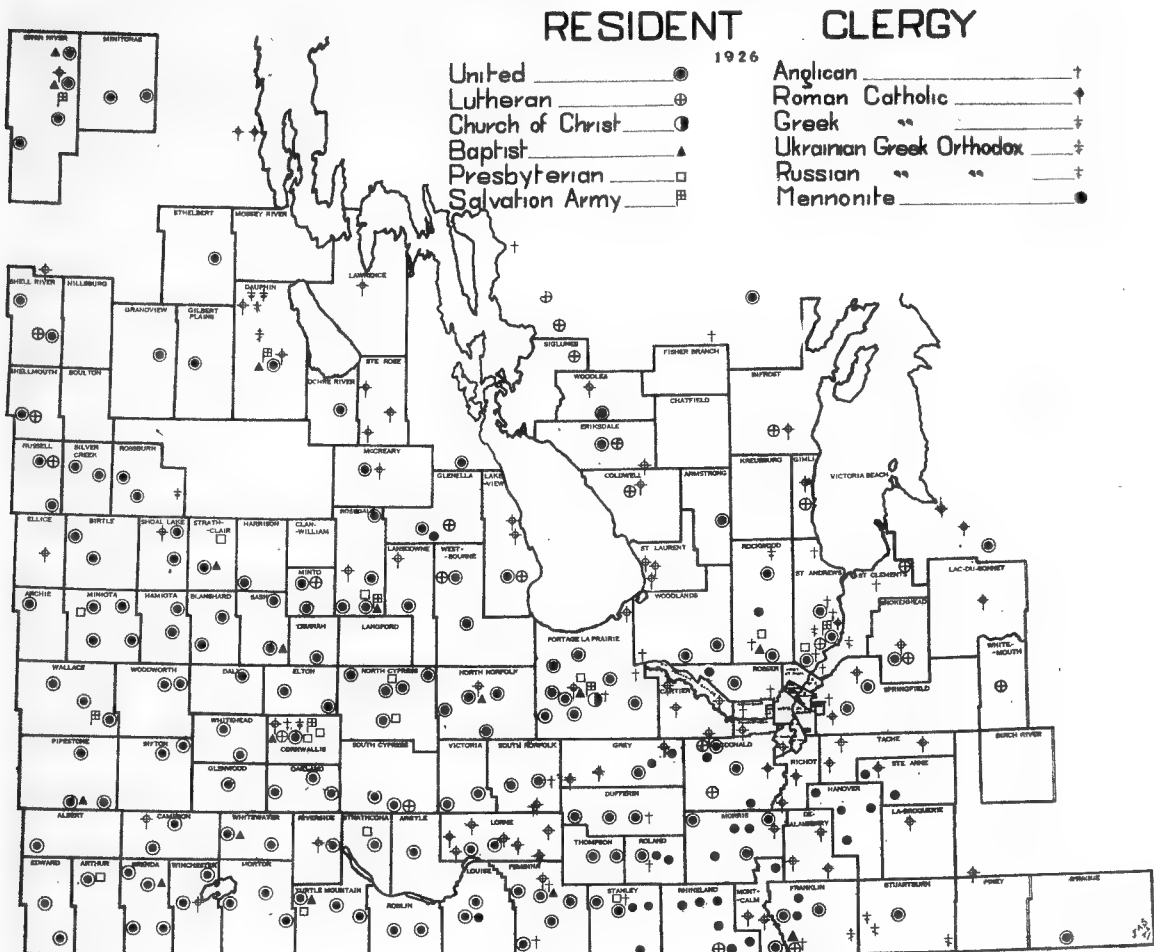
MAP No. 14

rapidly assimilated, and in the second generation most of them are hardly distinguishable from Anglo-Saxon.

In some parts, however, we find the non-Anglo-Saxons segregated in solid blocks. Instances of this are seen in the Mennonite, Russian-German and German settlements in southern Manitoba, just west of the Red River; in the French settlements south and east of Winnipeg, in Lorne Municipality and in the district west of Souris; and in the Slav settlements, chiefly Ukrainian, in the Municipalities of Kreuzburg, Ethelbert and Stuartburn, and around the Riding Mountains.

In the segregated communities the process of Canadianization is considerably slower, and there is also a tendency to extend into the Anglo-Saxon territory surrounding. Instances of this are seen in the Shoal Lake and Dauphin districts. Where the non-Anglo-Saxons are mixed and no type predominates, the process of Canadianization is also comparatively rapid. This is probably due to the fact that some compromise in language and educational matters is necessary and the natural compromise is to become Canadianized. The Canadianization of these new settlers is a matter which must be considered, and in doing so it must not be





MAP No. 17

forgotten that each of these nationalities has some contribution to make to our civilization. The process of Canadianization must not be one of repression, but a real assimilation in which their contribution shall not be left out.

In comparing the colored map, No. 15, which shows the distribution of population by national types, with the map showing relative density of population (No. 14), one fact stands out clearly, namely, that the non-Anglo-Saxon areas are more densely populated than the Anglo-Saxon areas.

In order to understand the problem of Canadianizing the non-Anglo-Saxon, and to appreciate the contribution each type may make to our national life, it is necessary to study the history, customs, ideals and standards of living of each class. Only by so doing can the leaders of our national life lay plans for the complete assimilation of the many elements of our cosmopolitan population, and to encourage immigration from these countries whose people can make the best contribution to our national life.

#### *The Scandinavians*

Among the more successful of our immigrant peoples are the Icelanders, Swedes, Norwegians and Danes, of whom there are over 26,000 in the province.

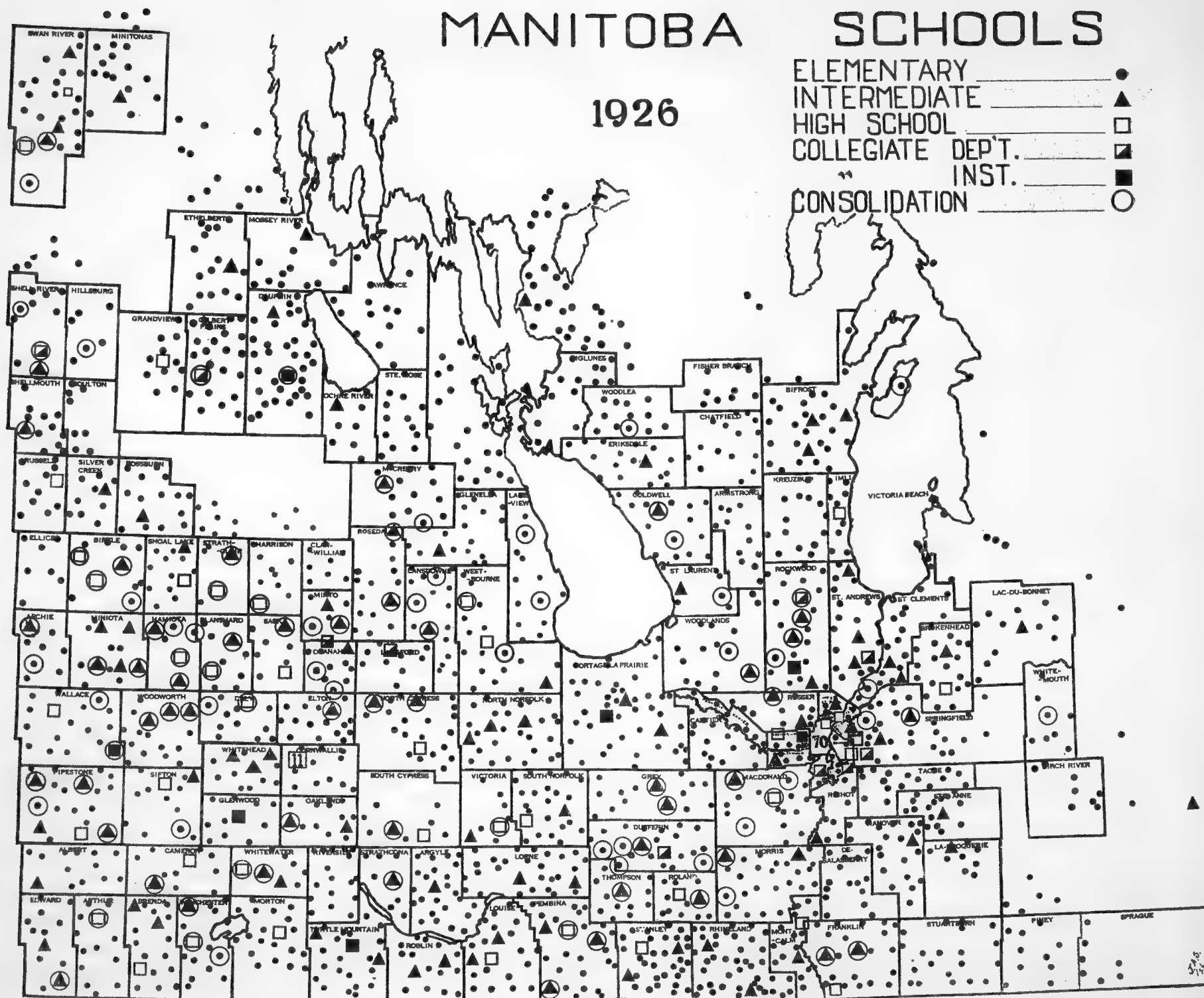


# MANITOBA

# SCHOOLS

1926

ELEMENTARY \_\_\_\_\_ ●  
 INTERMEDIATE \_\_\_\_\_ ▲  
 HIGH SCHOOL \_\_\_\_\_ □  
 COLLEGIATE DEPT. \_\_\_\_\_ ◻  
 INST. \_\_\_\_\_ ■  
 CONSOLIDATION \_\_\_\_\_ ○









The Scandinavian is to be found in almost every community, but he readily becomes Canadianized and almost indistinguishable from the Anglo-Saxon settler.

The chief Scandinavian settlements in Manitoba are along the shores of Lake Manitoba and Lake Winnipeg, and in the district between Baldur and Glenboro. One of the earliest settlements was north of Minnedosa, on the southern slopes of the Riding Mountains. Smaller groups are located in the Swan River Valley, in township one, range six, southwest of Morden, and in the extreme southeastern corner of the province near Piney. Not only do the Scandinavians who settled among English-speaking people readily adopt Canadian customs, but even where there are Icelandic or Swedish people in great numbers they insist on educating themselves and their children to conform to Canadian standards of living and methods of agriculture. While the language of the home in many cases is the old mother tongue, yet few adults and none of the youths are unable to mingle on equal terms with the English-speaking people. This is due in large measure to their early training in the home land, where education was highly prized. The national characteristics of the race are "ambition, industry and thrift," and these are usually needed in our Western civilization. The young men and women of the second and third generation of Scandinavians are taking their places in the forefront of our political, professional and industrial life, and by their interest in the moral, social and economic welfare of their various communities and the country as a whole, they are making a worthy contribution to our national development.

#### *Our Slav Neighbors*

Grossly misunderstood by the average Canadian are our Slav immigrants. Included in this type are the Russians, Poles, Ukrainians, Czecho-Slovakians and others from Southeastern Europe. It is estimated that there are over 100,000 Slavs in Manitoba. Winnipeg has a large number and the chief rural settlements are the Sifton-Ethelbert district; the southern slopes of the Riding Mountain by Shoal Lake and Rosburn; the Big Grass Marsh east of Glenella; the district between Lake Winnipeg and Lake Manitoba in the municipalities of Kreuzburg and Gimli; east of the Red River to the Brokenhead River, the southern half of Whitemouth municipality, Birch River municipality and Tolstoi. Smaller settlements and individual families are, of course, to be found all through the province.

Dr. J. T. M. Anderson, in "The Education of the New Canadian," says:

"Owing to the sudden change from autocracy to democracy; owing to the rapid and thoughtless manner in which we have on a wholesale plan 'made' Canadian citizens of these newcomers; owing to the power we have granted them by the almost eager bestowal of the franchise; owing to this sudden change of conditions the poor illiterate Slavic peasant has become overwhelmed with Canadian 'Freedom,' and it is small wonder that he begins to look rather lightly upon our laws and institutions, and disrespect for law is too often the inevitable result. Many of these people will be very slow to understand and appreciate the higher ideals of our civilization, but we have every reason to hope that their offspring, born under the Union Jack, will grow up as valuable Canadian citizens."

It must be remembered that like all other European immigrants the Slav is here in answer to our express invitation. When Canada needed laborers to build railroads, clear forests and develop land, agents backed by our government, painted rosy pictures of the goodness and richness of this land of opportunity, and Central Europe sent its thousands. To turn now and say, "They are undesirable, let them fend for themselves," is a breach of faith.

It must also be remembered that many of these new Canadians of Slav origin have shown themselves industrious and ambitious. Many have forged ahead in educational, commercial and civic life, and in agriculture they have frequently shown themselves to possess a remarkable love of the land. One incident which happened during the survey will suffice to illustrate the point. An interviewer asked a Ukrainian what his 160 acre farm was worth, and received the astonishing reply: "You offer me \$30,000 cash money, you cannot have dat farm, dat my home; me, with mine hand I make dat land."



### *The German Type*

The German type of farmer includes many very different classes, the Pennsylvanian Dutch, who were practically Americanized before migrating to Canada, the American-Germans who have stayed only a short time in the States, the Austrians and the Russian-Germans; among whom we may include the Mennonites.

The first three mentioned are near kin to the Anglo-Saxons, and their methods of living and working are such that they readily fall in with Canadian ways and except where they are surrounded by Central European settlers, they are rapidly assimilated and intermingle freely.

The Russian-Germans are much slower to adopt the English language and Canadian customs and some even in the third generation are still using the customs and language of Central Europe.

### *The Mennonites*

The Mennonites, of whom there are over 21,000 in Manitoba, are not a separate race or nation, but a group of religious communities founded on what they believe to be the teaching of Jesus and the practice of the early Christians. They care but little for the citizenship of any worldly kingdom or state, their aim is to fit themselves for the citizenship in the Kingdom of God by obeying Biblical teachings and the dictates of their conscience.

Let it not be imagined for one moment that the Mennonites have made no contribution to our development. Their methods may not always be the most up-to-date, but in the early days they showed the possibility of wheat growing and general farming; they demonstrated that a good living was obtainable and that money could be made farming on the plains. Long before the Manitoba Rural Credits Act was dreamed of Mennonites borrowed from their brethren at three and three and a half per cent. when banks and loan companies would take only select risks at eight per cent. The Manitoba Settlers' Annual Purchase Act, popularly known as the Winkler Cow Scheme, was acknowledged by its originator to be an idea borrowed from the Mennonites.

### *The Hutterians*

Ten years ago, a new group, known as the Hutterians, bought land east of Portage la Prairie and established a number of colonies. The Hutterians are communistic and live in large common houses, dressing alike and sharing all labor and proceeds. Their religious and economic doctrines will prevent them from becoming interested in the general affairs of the country. Their industry, however, is causing them to prosper, and the education of their children in the national schools should broaden the views of the next generation.

### *Settlers of French Extraction*

Settlements of the French type, which includes the French-Canadian, the Belgian and the Old Country French, are to be found along the banks of the Red River and Assiniboine River, and long the River Seine toward Ste. Anne des Chenes.

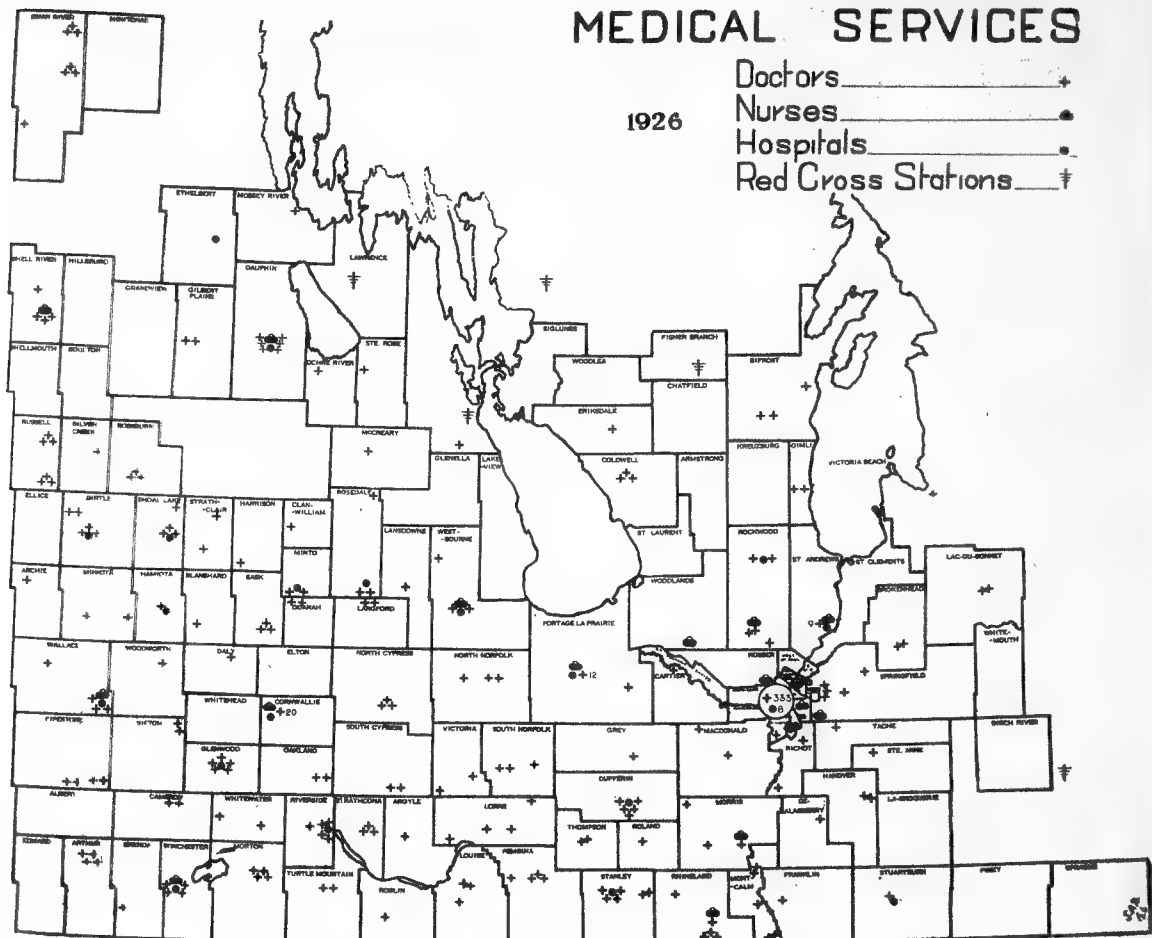
Other important settlements are the Somerset-Swan Lake District, Grand Clariere, northwest of Hartney, and the district around Ste. Rose du Lac. New settlements of Italians have been established at Lorette and at Alonsa.

Settlers of this type are apt to segregate and maintain their language, customs and religious ideals. The language question has been worn threadbare by arguments, and it would seem the true solution of the problem of assimilating the French type lies in sympathetic and intelligent co-operation rather than in opposition or even in compromise.

## *Rural Organizations*

Maps Nos. 16, 17, 18 and 19, which portray social institutions and services at present organized throughout the country, show clearly that only in those areas where agriculture is successfully carried on by a permanent population can social organizations be properly maintained. If we ask the question, "Can



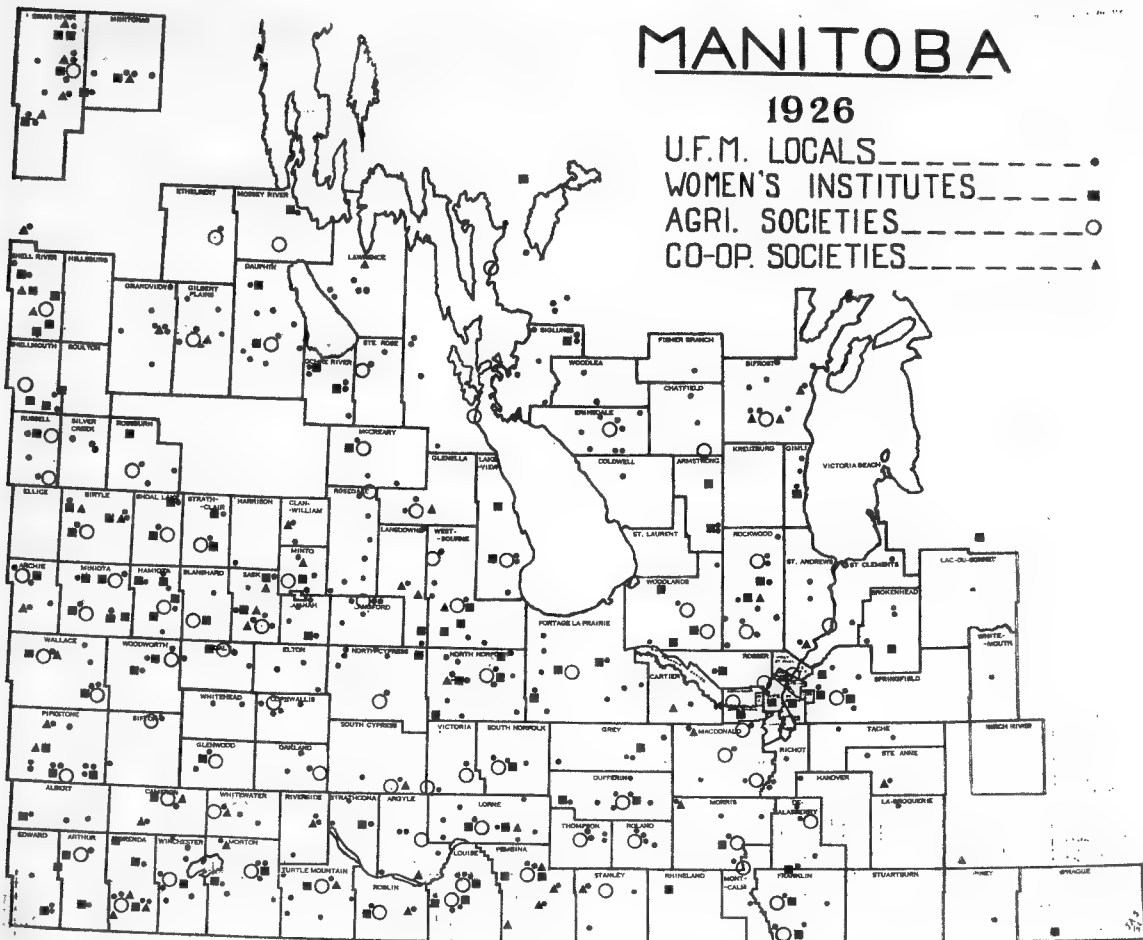


MAP No. 18

agriculture support modern institutions?" we are forced to answer, "only under favorable circumstances." While institutions such as the schools are to be found throughout the whole populated areas, this is largely because education is compulsory, and because the province has made additional grants to needy areas on the principle that the strong must help the weak. If such grants are to be permanent, because the local agricultural conditions do not permit the support of these institutions from local funds, the removal of the settlers to more favorable areas is the logical consequence.

A glance at the school map, No. 16, will reveal the fact that the facilities for higher education are adequately provided for only in the most prosperous regions, thus handicapping the generation growing up in the poorer regions and continuing to develop a marginal people on the marginal land. The total number of schools in Manitoba operating in 1926 was 1,862, of which 1,674 were elementary schools which provide education up to grade nine. Intermediate schools are found to number 122, in which three teachers are required with separate rooms; one of the teachers must have a first-class professional standing, and the other two must at least be of second-class professional standing. There were also 42 high schools.





MAP No. 19

These schools require to have five teachers with separate rooms, two of these teachers must give full time to high school work, and must have first-class professional standing. The minimum number of high school students in such schools is 25. There were 11 collegiate departments. These schools require to have seven teachers, three of whom will give full time to high school work and the principal must be a university graduate. There were also 13 collegiate institutes. This type of school requires a separate building and four full time high school teachers, each of whom must be a university graduate. It will thus be seen that the education facilities in the southern part of Manitoba are well developed, and with few exceptions quite adequate to the present needs of the province.

### *Social Services*

Such social services as the church and medical aid are also well organized throughout the older part of the province, and Map No. 17 which portrays the location of the resident clergy, gives a picture of the more stable of religious services. In addition to the clergy shown on this map, there are hundreds of church



services held by itinerant clergy, and almost all the churches maintain Home Mission Fields in the newer settled areas. These have not been included on the map because the services in many cases are only intermittent.

The map, No. 18, showing medical services, is somewhat less satisfactory from the point of view of settlement, for while certain areas seem to be well provided for, the frontier settlements are often lacking in medical facilities. The establishment of the Red Cross Service Stations, of which there are five at present in operation, is an attempt to overcome this difficulty, but much remains to be done before it can be said that medical services are within the reach of all. An extension of the Red Cross Service and an extension of the visiting nurse system throughout the northern and eastern portion, would seem to be an immediate necessity, for it is useless to expect medical men who can build up a good practice in the older settled areas, to locate in areas where the new settlers are struggling, however necessary their services may be.

Map No. 19 shows the location of the four main types of rural organizations, the United Farmers of Manitoba, the Women's Institutes, Agricultural Societies and Co-operative Societies. Here, again, it is noted that these seem to be segregated in certain favorable areas, and to be almost wholly absent in many newer areas where their existence would be a great inspiration and help to the struggling settlers.

These maps, taken together with the map of the unused land, show where new settlers may be placed in regions where the necessary social services can be provided with the minimum public expenditure.



A Church School at St. Jean Baptiste.



# Land Settlement Schemes

"It may be questioned whether it is a kindness to make it too easy for a person to become a settler under too large a burden of indebtedness in proportion to the equity of the settler himself."—J. D. Black.

## *Government Land Policy*

### *The Homestead Act*

In 1872 the Federal Parliament passed an "Act concerning the public lands of the Dominion" whereby any person 21 years of age could apply for a homestead right to one hundred and sixty (160) acres of Dominion land. Title to the property was granted at the expiration of three years, provided the entrant had resided on the property and made specified improvements.

### *The Pre-emption Privilege*

In 1879 homesteaders were allowed to make a pre-emption entry or preferential claim to purchase a quarter-section or a part of a quarter adjoining the homestead for the nominal price of one dollar (\$1) per acre. This pre-emption right was closely linked up with the homestead so that if the homestead were abandoned the pre-emption claim was void. The fact that settlers could thus control a half-section (320 acres) each produced a somewhat scattered population in the settlements and the natural result was excessive cost of construction and maintenance of roads, schools, public buildings, bridges, etc. Two other results are also traceable to this land policy; first, the ordinary farm unit in districts settled during this period was established as 320 acres; and, second, a large number of people took advantage of these provisions with a view to land speculation rather than with any genuine intention of establishing settlements.

From 1883 onwards the Federal Government restricted pre-emption entries and the privilege was abolished totally in 1889. The early Acts had permitted settlers to take up several homesteads in succession, but the amendments passed in 1886 provided that "no person who has obtained a homestead patent . . . shall be entitled to obtain another homestead entry."

With the great increase of immigration in the early years of this century there arose a demand for the revival of the pre-emption privilege and in 1908 this was re-enacted, giving any homesteader who had not already obtained a pre-emption the right to purchase a quarter-section adjoining his homestead or separated from it by a road allowance; the purchase price being three dollars per acre. If no land was available adjoining the home farm the settler might purchase another homestead on the same basis. These provisions remained in force until 1918 when rights of pre-emption and homestead purchase were abolished in order to make way for the new policy of Soldier Settlement.

All early legislation was simply permissive and no direction or assistance was given directly by the Government. Several Acts, however, were passed for the control of the numerous land and mortgage companies, which arose in this period ostensibly for the purpose of assisting settlement. Such legislation, however, was generally in the interest of the company and seldom in the interest either of the settler or of the state. The first real attempt at a land settlement policy was the Soldier Settlement Act of 1917.

### *Soldier Settlement*

The first Soldier Settlement Act (1917) was framed with the two-fold object of assisting the soldier to return to civilian life and occupation and of meeting the demand for greater agricultural production. The intention was to use only the unoccupied Dominion lands in the Western provinces for this scheme, but with the conclusion of the war and the return of the Expeditionary Forces it soon





A Comfortable Home for a New Settler. (Courtesy S.S.B.)

became evident that there was not sufficient Dominion land of suitable quality and that provision for purchase would have to be made.

This was done by the Soldier Settlement Act of 1919, which made provision for loans under three classifications:

1. For settlers buying farms through the Soldier Settlement Board.
  - (a) For land purchase .. \$4,500
  - (b) For stock and equipment .. 2,000
  - (c) For buildings and permanent improvements .. 1,000
2. For settlers on Dominion land in the Western provinces.
  - (a) For buildings, improvements, stock and equipment .. \$3,000
3. For settlers already in possession of land.
  - (a) For removal of encumbrances .. \$3,500
  - (b) For stock and equipment .. 2,000
  - (c) For buildings and improvements .. 1,000

The same Act set up a commission of three members to administer the Act and local boards in each of the provinces to act in an advisory capacity.

The Manitoba Board authorized 3,707 loans, of which 2,519 were on purchased farms, 973 were to settlers on Dominion lands and 215 were loans to farmers on privately owned land. The total amount of money loaned to soldier settlers in Manitoba was over \$17,000,000.

The Soldier Settlement Act has been in operation in the Province of Manitoba for eight years, and out of the 3,707 soldier settlers who took up farms under the Act, there are 2,104 who are still operating their farms. In other words, 56.8 per cent. of the settlers are still on their farms, and the remainder have, for various reasons, turned their properties back to the Board. The Winnipeg office has kept a careful record of the reasons why settlers have given up their holdings, and while in many cases there are several factors which enter into the abandonment, yet there is usually one reason which is outstanding. Thirty-five settlers have died and further 200 have been obliged to discontinue farming operations on account of a serious recurrence of war wounds. In such cases, of course, it is impossible to attach any blame to either the man or his farm or general conditions. A further 55 have been obliged to discontinue on account of serious domestic trouble. Fifty-one settlers gave up because their farms turned out to be manifestly incapable of producing a satisfactory living; 125 settlers were forced out of the district on account of the fact that they had incurred such heavy private local liabilities that the local community feeling made it impossible for them to remain; 377 settlers gave up on account of poor crop returns and unpreventable misfortunes, such as hail, flooding, etc. Finally, 604 settlers became failure cases through their own incompetency and bad management.



Ready for a 1927 British Settler. (Courtesy S.S.B.)





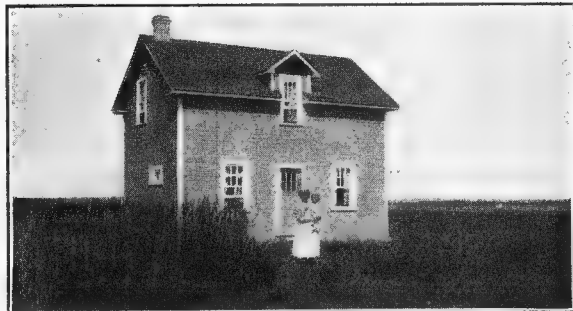
The Home of a 1926 British Settler. (Courtesy S.S.B.)

The 1,600 abandonments are regarded by some as a high percentage, but it must be remembered that some of this abandonment was due directly to the fact that the bulk of the purchases of land, stock and equipment were made in 1919 and 1920 at the very peak of prices, and subsequent deflation bore very heavily on the newly established settlers. It must further be noted that the Act placed a limit on the loans which meant that the best lands

and the best stock were beyond the reach of the soldier settler. Many also who had been eager to take up farming when wheat prices ranged around \$3.00 per bushel were just as eager to quit when the slump came.

Several attempts at readjustment have been made. In 1922 the principal change was the consolidation of each settler's indebtedness—the whole to be amortized in 25 years at a rate of 5 per cent., while in 1925 amendments provided for the reduction of the purchase price of live stock. The Dominion Parliament is considering at their present session a measure providing for the revaluation of soldier settlers' land.

In 1923 the Soldier Settlement Board was placed under the Minister of Immigration and Colonization. This step was taken because the department appreciated that the District Offices of the Board, together with their staff of Field Supervisors, have naturally, in the course of their work, accumulated much valuable experience and data on farming district, land values, and the special problems of new settlers, and the department felt that good use could be made of this knowledge and experience in general colonization work. In carrying on general colonization work for the department, the organization is known as the Land Settlement Branch. By reason of the local contact of its field staff, the Land Settlement Branch is able to secure the best of farm places for farm help newly arrived in the country, and during the past season immigrant farm help to the number of 1,063 (mostly British) has been placed throughout the Province by the organization. The Land Settlement Branch also maintains a Land Listing Bureau, and is ready and willing to assist any land-seeker in locating a good proposition in a good district, and a great deal of advice and direction is given each year to such newcomers. Further, the organization is also handling what is known as the 3,000 Family Settlement Scheme. Under this arrangement families are selected in the Old Country and placed on Government-owned farms in Canada. No family is permitted to take up the active operation of one of these farms until the family has worked out for a year and demonstrated its fitness. The arrangement between the two Governments is that the Canadian Government supplies the farm and the British Government supplies a working capital of \$1,500. So



Quite satisfied with her new home. (Courtesy S.S.B.)



far under this scheme 160 families have been placed in Manitoba, and their progress to date has been very satisfactory.

This British Family Settlement Scheme places approved immigrants on Soldier Settlement lands and sells it to them on an amortization basis extending over 25 years with interest at 5 per cent.

The Land Settlement Branch has already sold over 400 farms which had been abandoned by soldier settlers. Some of these are now held by British settlers and the remainder by neighboring farmers. There are still over one thousand farms to dispose of, but most of these are under lease to tenants at present.

The whole organization of the Soldier Settlement Board and Land Settlement Branch provides excellent and adequate machinery for colonization work.

### *Assisted Immigration and Settlement*

#### *The Railroads*

The granting of lands to railway companies to encourage them to build has been practised quite freely in Canada; Manitoba land to the extent of three and a half million acres has been so granted. The companies were under no obligation to settle these lands, but it was understood that they would develop and settle them as soon as there seemed to be a demand.

The Canadian Pacific has through its Land and Colonization Department given considerable attention to land settlement. The terms of sale at first were one-tenth cash, ten annual payments, interest at the rate of 6 per cent. The price was \$2.50 per acre with a reduction of \$1.25 per acre for every acre put under cultivation.

Subsequently the period of payment was extended to 30 years with no payments after the first cash instalment until the end of the fourth year. In 1923 the company made its terms still easier; offering land for a cash payment of 7 per cent. of the total value, no further payment was to be made until the end of the second year, and the balance repayable by amortization in 34 annual instalments.

These terms were also made applicable to contracts previously made but not fulfilled.

The company land ranges in price from \$5.00 to \$25.00 per acre, but there is very little land in Manitoba still unsold which could be regarded as first-class farm land.

The Canadian National Railway has also a well-organized department of Colonization and Land Settlement. In earlier years the chief concern was the settlement of their own lands, but more recently considerable attention has been devoted to the placing of settlers on any land. Both railroads are also assisting in the placement of farm labor, especially the type known as "partially-experienced." The basic idea of this department is, of course, to provide opportunity for immigrants to obtain the necessary experience before setting up for themselves.

The Railroad Colonization Departments have also, in recent years, in co-operation with religious bodies and national associations, actively fostered group settlement. The Canadian Pacific supports and largely controls the "Canada Colonization Association," which includes such bodies as the Mennonite Board, the Lutheran Board, the Catholic Board and numerous others. Last year this organization placed in Western Canada 734 families, 299 being placed in Manitoba. The bulk of the settlers brought in were Mennonites; 85 per cent. of the total placements in the last two years were of this group.

The terms of settlement are generally quite advantageous to the settler. The Board locates and inspects the properties, supervises the drawing of the contract, purchases or assists in purchasing stock and equipment, and adjusts difficulties if any should arise between vendors and purchasers.

The Canadian National Colonization Association, which is financed by the Canadian National Railway, similarly co-operates with religious and national



bodies and last year settled 16 families in Manitoba and 250 in Saskatchewan. Group settlements are favored as these give opportunity for more economic supervision, which is provided both from the central office and through local agents.

It should be noted that through these organizations very little virgin land in Manitoba is being settled, but that the breaking up of large farms of 2,000 to 10,000 acres amongst several families is quite a desirable feature, especially in Southern Manitoba where land has been for several years too "extensively" farmed.



Rosedale Hutterian Community

The transportation companies grant to the Mennonite groups certain privileges in connection with passage money. These privileges are known as credit passages and half-credit passages. This is regarded as a safe investment by these companies since the Mennonite is proverbially prompt in meeting his obligations.

### *Group and Co-operative Settlements*

The modern tendency in colonization is toward group settlement and even where individual settlement is favored there is the desire to locate them somewhat close together to facilitate oversight. Typical examples of the newer group settlements in Manitoba are found in the new Mennonite colonies referred to above.

The Mennonite Board locates and inspects a property and arranges for its purchase by a group of immigrants who execute the contract individually, but the Board guarantees to find new settlers to take the place of any defaulters or malcontents. The contracts are not by any means stereotyped, but are varied to suit the circumstances. Frequently, however, the transfer is made without the payment of any cash. Land, stock, implements, feed and seed are handed over, to be paid for on a half-crop basis. Other contracts call for a payment of 10 per cent. of the total purchase price and arrange for the amortization of the balance.

More than 90 per cent. of the contracts are being lived up to, and where the price of land has not been too high there is every likelihood that the settlers will succeed. Those who are experienced in the business of colonization believe that only on the group basis is it possible to grant such liberal terms. These groups, however, are not communistic, but as soon as possible each individual family assumes responsibility for its share of the purchase and assumes control of its own farmstead and operations.

Another settlement of similar nature has just been established at Little Britain in the Red River Valley. This was consummated through the German Catholic Board, which purchased 3,100 acres for 31 families. These families are at present domiciled in a community house, but ultimately will have their own homes on their own hundred acres. The terms were a small cash payment and the balance amortized at a rate of 5 per cent. for 30 years.

#### *The Hutterians*

The only truly communistic groups in rural Manitoba are the Hutterian Brethren, who have founded in all 10 colonies since 1918. Eight of these are



situated near Elie, west of Winnipeg, just south of the Assiniboine River. The Huron Colony holds 3,100 acres, Rosedale 3,440 acres, James Valley 2,650 acres, Milltown 3,400 acres, Barrickman 2,770 acres, Maxwell 3,065 acres, Iberville 3,220 acres, Bon Homme 3,000 acres. In the Plum Coulee district the Rosengart Colony bought a large tract of land from the Old Colony Mennonites in 1922. In the Manitou district an offshoot of the Elie Colony has established the Thorndale Colony of 2,600 acres.

The greater part of this land was bought for \$50.00 to \$55.00 per acre on a 20-year amortization plan and in every case the colonies by their industry, good farming methods and thrift are succeeding in making their payments promptly.\*

#### *North Italy Farmers' Colony*

An interesting experiment in co-operative farming is found in the North Italy Farmers' Colonies at Lorette and Alonsa. The members of this company are Italian farmers from the Lomellina district of North Italy who deposit a minimum of \$200 each. The membership also includes Italians from this district already



Hitching Up. Alonsa Italian Colony

resident in Canada. The plan of operations is to purchase large blocks of partially developed land which are operated as units under a manager. All members are given work on the property and are paid standard wages, which they may leave wholly or partially with the company in order to build up their capital shares. If there is not enough work in the colony several members are released for work outside subject to recall at any time. As soon as the farms are sufficiently developed the families of the members will be brought out and established, but the co-operative basis will be maintained until the farms are fully paid for.

Last year the company operated 1,250 acres at Lorette and 8,000 acres at Alonsa, and had begun negotiations for the purchase of several thousand acres in Glenella district.

It is too early to pronounce on the value of this project, but the spirit of the colony is at present thoroughly co-operative and augurs well for success in that the capital of the company more than doubled in the 12-month period.

#### *The Manitoba Dairy Farms Limited*

A typical example of what may be done by private development enterprises is seen in the Davidson project at Marchand, which is about 50 miles southeast of Winnipeg.

\*"A full account of the Hutterian communities can be found in the Journal of Political Economy for June and August, 1924—J.P.E., Vol. xxxii, Nos. 3 and 4.



The Manitoba Dairy Farms Limited acquired a block of 70,000 acres and are draining and developing the whole tract, which is composed of sandy loam or else peat over sand. The land is generally timbered with a poplar growth of 8 to 14 inches on the higher lands, but with pine and tamarac swamps interspersed. The Davidson interests have already invested three-quarters of a million dollars in the purchase and development of the area and have begun the settlement with 12 settlers in the northeast corner of the block. The Davidson plan subdivides the land into 160-acre and 320-acre units, erects a modest house and barn, constructs a silo and digs a well. Each settler is supposed to be furnished with 10 Holstein cows and these are chosen from a herd of 600 head of pure-bred and grade Holsteins guaranteed free from tuberculosis, which are now on the headquarters farm.

The terms of purchase are summarized as follows:

Price \$20.00 per acre, which includes house and barn and 20 acres cleared and broken.

Cash payment, \$1,000, but this is liberally interpreted.

Amortization—The balance is payable in 20 years with interest at 6 per cent.

Stock—Cows purchased are paid for by deposit of half the produce and the rate of interest on the purchase price is 7 per cent.

#### *Summary of Terms of Sale*

1. A few of the land companies are still selling on the basis of one-third cash and executing a five-year mortgage at 7, 7½ or 8 per cent. for the balance.
2. Many of the land and mortgage companies are selling on the basis of one-third cash and long term amortization of the balance (generally 20 years), generally at the rate of 7 or 8 per cent.
3. Colonization companies favor the execution of an agreement of sale with about one-tenth cash down and the balance payable in 20, 25 or 30 years in equal instalments, and are endeavoring to establish a rate of 6 per cent. or less, although some contracts still call for higher rates.
4. Colonization companies are also executing agreements on a half-crop payment basis where the cash payment at the time of purchase is small.
5. There is a growing tendency to defer the payments after the first cash payment for one, two and even three years, the accumulated interest being added to the principal and amortized.
6. The terms established by the British Overseas Settlement Scheme are:
  - (a) No cash payment.
  - (b) Interest at the rate of 5 per cent.
  - (c) Arrears may be added to principal and amortized.
  - (d) Payment in full may be made at any time without notice or bonus.

The schemes here briefly outlined are suggestive and include the main types of land settlement in vogue in such countries as Australia, South Africa and the "Great Lakes" States of the United States. What is required in Manitoba is not the establishment of new colonization machinery, but the opening of a "Clearing House" of information concerning the opportunities offered by the various companies.

It is also to be noted that land and colonization companies are all providing more or less supervision and after-care of their settlers. The establishment of a Provincial System of Agricultural Agents would be a more economical and more systematic method of supervision, and such a system would provide much needed technical direction for farmers in the newer areas and in areas where agriculture is in the transition stage from grain growing to more intensive types of farming.



## Recommendations

The successful settlement and development of the unused agricultural land of the province depends not only on the careful selection and direction of a suitable type of settler, but also on the propagation of a constructive program of agricultural development for the province as a whole, and for the various areas within which such settlement shall take place. It is, therefore, recommended:

I. That an Agricultural Development Board be appointed whose duties shall be, *inter alia*:—

(a) The encouragement of colonization and the selection and direction of settlers.

(b) The establishment of a colonization bureau in which there shall be filed up-to-date information of an unbiased character concerning lands for sale in the province; such information should be available for consultation by prospective settlers.

(c) The bringing together of representatives of Land Companies, Mortgage Companies and Colonization Companies for the discussion of plans to encourage settlement on privately owned land and to develop, if possible, a joint scheme for the pooling of land for group settlement.

(d) The intensive study of the soils of the province in co-operation with the Topographical Surveys Branch of the Department of the Interior, with a view to the more efficient utilization of the various soil types.

(e) The enunciation of a constructive program of agricultural development for the province as a whole, and for the various agricultural areas within the province.

(f) The organization of local development boards with technical experts as secretaries who shall act as advisors of new settlers and present farmers.

(g) The study of economic conditions pertaining to the agricultural industry and the dissemination of market information to guide the farmer in a program of balanced production.

II. In view of the fact that the production of such products as butter, eggs, poultry, honey and potatoes is increasing faster than the development of efficient marketing machinery and that serious results may occur, that the efforts of the Provincial Government in the field of production be supplemented by a vigorous pursuit of a national marketing policy by the Dominion Government.

III. That the Provincial Government should continue negotiations with the Dominion Government with a view to obtaining control of the crown lands within the province, or to inaugurate a scheme of co-operation between the Federal and Provincial Departments so that no land shall be opened for settlement by the Dominion Government without the consent of the Province.

IV. That the Provincial Government should memorialize the Forestry Branch of the Department of the Interior, with respect to the maintenance of the closest possible supervision of the operations of timber permit holders.

V. In view of the fact that the land of some of the forest reserves is of a very sandy nature, with a tendency toward spring drifting, which is detrimental to crops on adjacent agricultural land, the Forestry Branch should be asked to carry out a policy of afforestation similar to that in operation on the Sandilands Forest Reserve.



UNUSED LANDS OF MANITOBA

VI. In view of the fact that some land adjacent to present forest reserves has been found to be of low agricultural value, the Forestry Branch should be asked to make a survey with a view to the inclusion of such land in the forest reserves.

VII. That consideration should be given by the Provincial Government through its Farm Loans Board, or other agency to be established, to the question of providing for the financing of settlement on selected public land at present held by the Provincial and Municipal Governments. Such provision should consist of either long term mortgage loans covering a portion or all of the purchase price of such land or else consist of progressive development loans.

VIII. In view of the fact that considerable areas within the province are pre-eminently suited for stock raising and dairying, that consideration should be given to the question of reviving the operation of such acts as the Animal Purchase Act in selected areas.

IX. That the Department of Public Works and the Department of Agriculture of the Provincial Government should co-operate closely in development work, so that engineering projects such as drainage and road building may be considered from the point of view of the agricultural possibilities of the district.

X. That an intensive survey of the Winnipeg suburban area be made in the near future with a view to determining the most economic use of the idle land therein. The Agricultural Development Board and the officials of suburban municipalities should co-operate in this survey.



APPENDIX I.

APPENDIX I.

*Schedule A*

List of Unused Land in Municipality of .....

Legal Description: Section Township Range  
 Owner's Name .....  
 Owner's Address .....  
 General Description: Bush Park Prairie  
 Good Land Medium Poor  
 Has land ever been farmed? .....  
 Price asked: .....  
 Remarks: Give any other information which you consider valuable on nature of  
 land, buildings and improvements.

*Schedule B*

Even if the unused land is not for sale kindly answer all questions except the last. If you desire, you may mark this  
 confidential in which case the information will be used for statistical purposes only, and your confidence respected.

Owner's Name .....  
 Address .....  
 Description of Land Owned: Section Township Range  
 In the Municipality of. Number of acres  
 Miles from shipping point Name of nearest town  
 Has this land ever been farmed? If so, when .....  
 Number of acres broken .....  
 Number of acres suitable for immediate cultivation .....  
 What buildings are on farm .....  
 Approximate value of buildings \$ ..... Any other improvements .....  
 When was this land acquired .....  
 From whom did you acquire this land? .....  
 Have you a clear title? ..... Your equity, \$ .....  
 Is this land for sale? ..... What price is asked? \$ .....  
 Remarks: .....

Write here any other information you desire to give respecting this land.



APPENDIX I.

*Schedule C*

SETTLER'S RECORD

Municipality of

PART ONE:

Name .....

P O. ....

Section      Township      Range      Miles to Nearest Station .....

Acres in Farm Owned      Rented .....

Year and month of acquiring land .....

Year and month of settlement .....

Year and month of securing title .....

From whom was the land acquired .....

Terms of purchase: .....

.....Purchase price (confidential) .....

Did you see the land before you settled? .....

No. of acres broken when land was acquired .....

No. of acres broken now      Buildings on land when acquired .....

.....

Value of buildings now \$.....Present value of farm \$      Your equity \$

Estimated annual income from farm.....

Income from other sources .....

What sources .....

Average income from other sources in early years .....

What were you worth at settlement      Present worth .....

Settler's nationality ..... Birthplace .....

Age.      Education .....

Previous occupation .....

Previous experience in farming: As laborer      Tenant      Owner. ....

How did you happen to settle in this area ..

PART TWO

Attitude of settler: Toward farming in this district .....

Quality of land.....

Price paid for farm.....

Desirability of this area for a home .....

Type of farming for this area ....

.....

.....

Conditions that make for success or failure in this district ..

.....

Changes in settler's farming methods since settlement .....

.....

.....



APPENDIX II.

APPENDIX II

Analysis of Settlers' Records

A study of the interviews with settlers was made to discover (a) whether any relationship existed between the length of time a settler had been operating and the annual increase in his net worth; (b) whether the settlers of older standing had on the average a larger or smaller initial capital than those of more recent date; and (c) whether there existed any relationship between the amount of initial capital possessed by a settler and the average annual increase in his net worth. Of a necessity these records include only those settlers who had been successful enough to remain on their farms. Records of farmers who had been failures were not obtainable, but of the 238 who were able to give reasonably accurate information, 18 reported decrease in net worth. These 18 are included in the category of those who made less than \$100 per annum.

As stated in the general report the bulk of the unused land is found in the northern and eastern portions of the settled area, and these are the areas in which the non-Anglo-Saxon predominates.

The records were obtained from the various national types as follows: Anglo-Saxon, 41.5 per cent.; Slav, 39.8 per cent.; German, 9.2 per cent.; Scandinavian, 8 per cent., and French 1.5 per cent. This would seem to be a representative sample of those areas, but the figures shown should in no wise be applied to conditions in the older-settled south and southwestern portions of the province. The following tables are summaries of the analysis:

TABLE A

No. of Years on Farm	No. of cases	Percentage Who Increased Their Net Worth Annually by less than						by more than \$600
		\$100	\$200	\$300	\$400	\$500	\$600	
1-10	62	17.7	38.8	48.4	56.5	66.1	71.0	29.0
10-20	104	19.2	63.5	77.9	82.7	88.5	92.3	7.7
Over 20	72	27.8	54.2	69.4	75.0	80.6	83.3	16.7
All Cases	238	21.4	54.2	67.6	73.5	80.3	84.0	16.0

TABLE B

Initial Capital	No. of Cases	Percentage Who Increased Their Net Worth Annually by less than						by more than \$600
		\$100	\$200	\$300	\$400	\$500	\$600	
0-500	143	19.6	56.6	70.6	76.2	81.8	83.9	16.1
500-1000	43	20.9	53.5	72.1	76.4	83.7	93.0	7.0
1001-2000	28	32.1	60.7	71.4	78.6	85.7	89.3	10.7
Over 2000	24	20.8	33.3	37.5	45.8	58.3	62.5	37.5
All Cases	238	21.4	54.2	67.6	73.5	80.3	84.0	16.0



UNUSED LANDS OF MANITOBA

TABLE C

No. of Years On Farm	No. of Cases	Percentage Who Had Initial Capital of Less Than			Of More Than \$2000
		\$500	\$1000	\$2000	
1-10.	62	45.2	64.5	79.0	21.0
10-20. . .	104	61.5	81.7	93.3	6.7
Over 20.	72	70.8	84.7	94.4	5.6
All Cases . . . .	238	60.1	78.2	89.9	10.1

More than 50 per cent. of the settlers visited had worked out in the early years of settlement at such occupations as farm labor, lumbering, fishing, trapping, railroad construction, road-making. Where other occupations than those mentioned were reported as sources of income the record was discarded. Those mentioned may be regarded as incident to the development of new territory, and are, therefore, legitimately included.

Table A shows that the more recent settlers have made higher annual increases, nearly half being over \$400, while the dividing point with the older settlers lies at less than \$200. Table B however indicates that the recent settlers have started with a larger initial capital and Table C shows that those who had over \$2,000 as their initial capital have made greater net annual increases. All of which would seem to point to the necessity of a fair amount of capital (probably around \$2,000) as the minimum with which a settler might start under present conditions.

Concerning the previous experience and occupation of the settlers there were 360 complete records of which 272 or 75.6 per cent. had previous farming experience as laborer, farmer's son, tenant or operator, while 15 had been carpenters, 10 had been railroad employees, 9 had been masons, 7 clerks, 6 laborers and 6 blacksmiths. Other occupations which had two or more representatives were mechanic, teacher, miller, miner, baker, buttermaker, sailor, butcher, teamster; while barber, banker, bartender, draftsman, elevator operator, lawyer, land surveyor, locksmith, printer, shoemaker, tailor, tanner and woodturner were each recorded once. The previous experience seemed to have no bearing on the degree of success, but this was probably due to the fact that those who were not getting ahead in farming and who had experience in other trades, were likely to move back to their old occupations in the city, while the farmer, with no other trade, was less mobile.

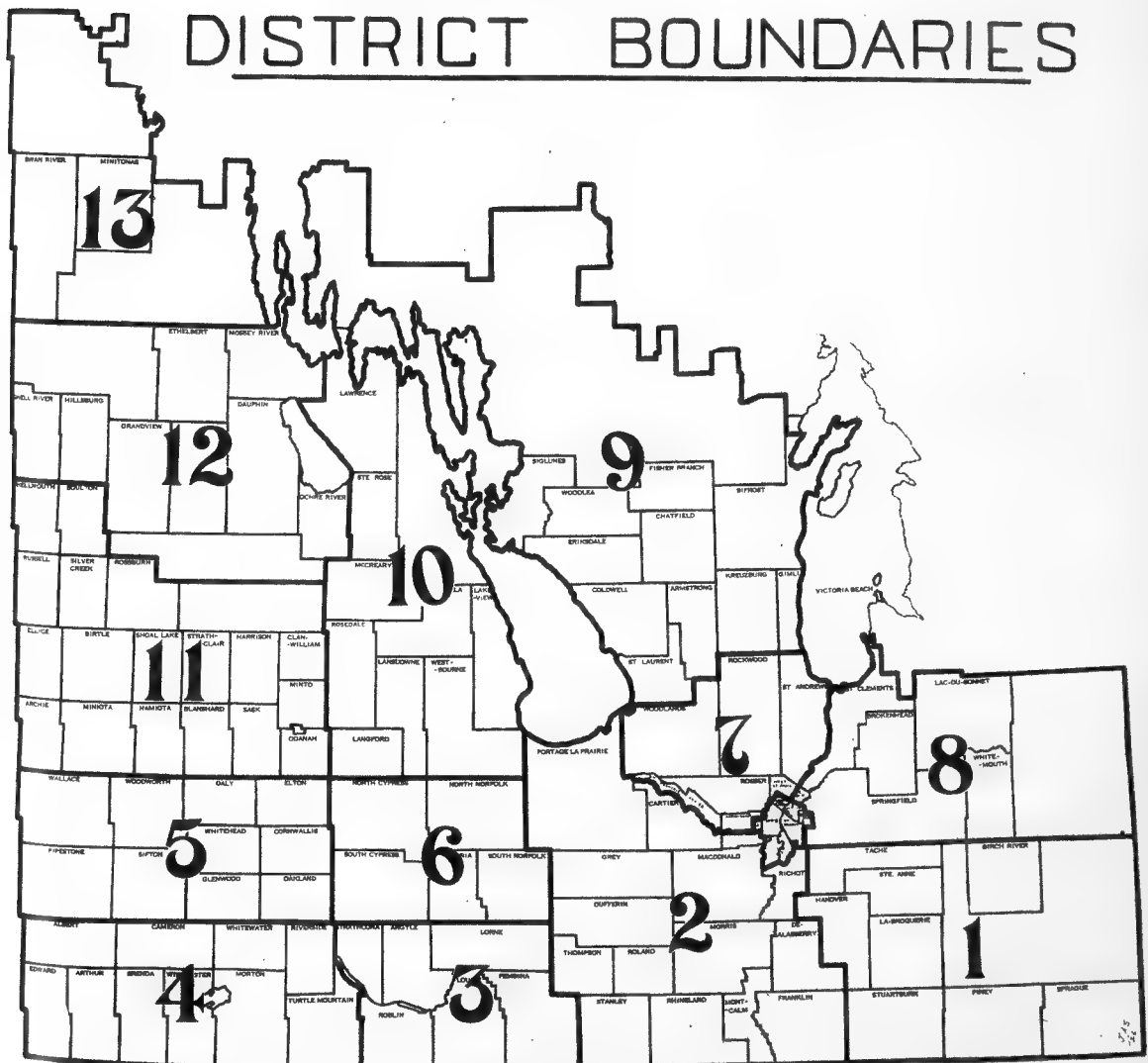


## Part II

In order to discuss in detail the various problems connected with Unused Land, the province was divided into thirteen districts as shown on the accompanying Map No. 20.

The following chapters give a brief review of the land situation, the agricultural practices, and the settlement opportunities in each district.

NOTE.—On account of the relative scarcity of Unused Land in Southwestern Manitoba, and the acute need for detailed investigation in other areas, only brief reports have been made on districts 3, 4 and 5.



MAP No. 20



# District Number One

## *Southeastern Manitoba*

District number one, which comprises the southeast corner of the province, including the municipalities of Sprague, Piney, Stuartburn, La Broquerie, Hanover, Ste. Anne, Tache and Birch River, with an area of 1,704,960 acres, and the unorganized territory in townships 4 to 9 inclusive, ranges 10 to 17 east of the principal meridian, with an area of 903,400 acres. This makes a total area for district number one of 2,608,360 acres, of which 753,491 acres of organized territory and 740,080 acres of unorganized territory, or a total of 1,527,571 acres, are not at present any part of a farm. Of this "Unused Land" the Dominion Government holds 1,177,700 acres or 77.09 per cent., most of which lies in the unorganized territory, and in the municipalities of Birch River, Piney and Sprague; the Land Settlement Board holds 6,290 acres and the Hudson's Bay Company 72,720 acres or 4.76 per cent. The municipalities concerned have title to 18,125 acres, and the Provincial Government holds 49,100 or 3.21 per cent. The balance is held by private owners, more than half of whom are persons resident in the municipality in which the land is situated.

This leaves a balance of 1,080,789 acres, which includes Forest Reserves 120,000 acres, Indian Reserves, railroads, townsites, water courses and lakes, and occupied farms which were given by the Dominion Census of 1921 as 568,814 acres. (Sixth Census of Canada, Vol. V, Page 250).

### *Type of Agriculture Followed*

In this area over 70 per cent. of the farms are 200 acres or less and only 12 per cent. consist of 300 acres or more, the average being 179 acres. This is, therefore, essentially a district of medium-sized farms, most of which are held by the original settlers. Ninety-four per cent. of the farmers are owners and only 6 per cent. are tenants. In the municipalities of Tache and Ste. Anne, however, there is a somewhat larger percentage of renting.

Although the total area in occupied farms is 568,814 acres, only about 120,000 acres are actually cultivated, and while in the war period considerable wheat was grown there has been a remarkable falling off of the acreage sown to wheat each year, until in 1925 it was only 16 per cent. of what it was in 1921. (Manitoba Crop Bulletin, 1921 and 1925). Barley and flax are also less popular, while oats remains constant and there is a tremendous increase in the acreage of timothy and clover, especially sweet clover.

We thus see a decided trend away from cereals towards forage crops, which is also evidenced by a change in the amount of livestock and dairy products. The district might be termed pre-eminently a dairy district and many successful dairy farmers are to be found throughout the whole settled area.

### *Soil and Topography*

This area may be described geologically as being on the western edge of the Canadian or Laurentian Shield. Only the western half of Tache and Hanover and a small part of Ste. Anne lie within the Red River Valley. The Red River soil is the well-known fertile, heavy clay loam, but the other soils are somewhat less productive and are very "patchy." The memoir of the Department of Mines on the "Upper Whitemouth" shows a variety of soils in the eastern portion of this area (townships 1-10 inclusive in ranges 8-17 of the first meridian).

The distinctive topographical feature of this district is a high sandy ridge rising from 1,000 to 1,275 feet. This is an irregular formation known as the Bedford Hills extending into township 1, range 12, township 2, range 11 and 12, township 3, range 11 and 12, township 3, range 9, 10 and 11, township 5, range 9 and 10, township 6, range 10 and covering an area of approximately 120,000 acres.



*Ownership of "Unused Land"*  
Table No. 4

Name of Municipality	Dominion Govt.	Soldier Sett. Board	Hudson's Bay Company	Municipality	Provincial Govt.	Private Owners			TOTAL
						Local	Manitoban	Canadian	
Hanover	4,160		4,160	2,720	3,680	1,280	4,800	960	30,080
Tache	960	3,570	1,600	2,880	5,100	1,865	17,828	1,266	45,636
St. Anne	50,800		1,840	1,620		2,520	3,080		10,220
Stuartburn	57,120		10,080	1,440	38,560	160	5,120	800	116,160
Piney		1,920	2,800	5,600		6,480	11,040	4,160	36,960
Birch River	143,620		9,520	985		180	1,430	140	155,875
La Broquerie	67,200	480	640	1,440	160	92,320	3,200	960	167,360
Sprague	119,760	320	3,680	1,440		8,800	2,560	1,280	141,200
Unorganized Territory	734,080		38,400		1,600				774,080
	1,177,700	6,290	72,720	18,125	49,100	113,605	49,058	9,566	1,527,571
	77.09%	41%	4.76%	1.19%	3.21%	7.44%	3.21%	.63%	2.06%

Total Area of Organized District

1,704,960 acres

Total Area of Unorganized District

903,400 acres

District No. 1—Total Area

2,608,360 acres



To the east and northeast of this ridge lie areas characterized as bog, while the southern fringe and the western portion are chiefly sandy loam underlaid with sand or clay and occasional stony ridges. The northern part of this district is traversed by the Greater Winnipeg Water District Pipe Line and Railroad, and the engineers' profile shows that from about 30 miles east of Winnipeg the soil consists chiefly of sandy loam underlaid by sand or clay with boulders; or else it consists of peat, varying in depth from 4 inches to 12 inches, underlaid by sand or clay. At the extreme eastern end for a distance of about 20 miles the peat is found to a depth of 20 to 30 feet. The same profile shows the land rising generally toward the east from an elevation of 800 feet at the edge of the Red River Valley to 1,075 feet at the eastern boundary of the province. Close to the natural drainage courses, which are not deeply eroded, there are narrow areas of good sandy loam with clay subsoil. West of the Bedford Hills is another area of peat over sand and sandy loam in La Broquerie municipality which is being improved by the Manitoba Dairy Farms Limited, and already several settlers have taken up quarter and half-section farms.

Elsewhere in the western portion of this area there are drainage projects in process of completion and much of the land is already under cultivation.



Clearing Land, Marchand

#### *Bush Covering*

The land in the southeast corner of this district is practically all bush land; although in the vicinity of settlements, the greater part of the saw timber and cord wood has been culled out, there is still an immense area forested with pine, spruce, tamarac and poplar and many settlers are obtaining good revenue annually from cordwood, pulpwood and saw logs.

#### *Drainage*

The natural drainage courses in this area are the Seine, the Rat, the Marais, the Roseau, along with their small tributaries. Unfortunately, the channels of these are not well enough defined in the upper reaches to take care of spring floods or heavy summer rains and frequent inundations are the result. Improvements have already been undertaken in many areas, such as the Roseau Project, but some public expenditures must be made to deepen and dyke the upper reaches of these streams to give immediate relief to present settlers. Such expenditures will also give opportunity for immediate settlement of many hundreds of acres of good land, at present too wet to farm.

#### *Transportation*

This district is served by four lines of railway. The Canadian National line from Winnipeg to Fort Frances traverses from the northwest corner to the extreme southeast, and the present service is daily for passenger and express with good freight service. The Emerson-Sprague branch of the C.N.R. which runs a few miles north of the International boundary and provides tri-weekly passenger and express service.

The northern portion is served by the Greater Winnipeg Water District Railway, which maintains a passenger and express service by gasoline train tri-weekly each way and a freight service according to demand. There is also on this line a special daily service by gas car for the collection of milk and cream.



This is maintained only to Mile 36, but will be extended as soon as traffic warrants it. The C.P.R. Soo line from Winnipeg to Emerson also passes the western boundary of this area, providing adequate passenger, express and freight service.

The municipalities of Tache, Ste. Anne, Hanover and Stuartburn are under the Good Roads Act. The rest of the settled area is fairly well served by second-class roads and by many well travelled trails.

#### *Population*

The total population of this area is about 20,000, of whom only 8.2 per cent. are of British origin, 42 per cent. are Slav, chiefly Ukrainian, 22.2 per cent. are French, 21.3 per cent. are German or Mennonite, and about 4.0 per cent. are Scandinavian. (See colored Map No. 15).

The settlement of the western half of this area began at quite an early date, but the southern portion was settled in the first decade of this century, while the extreme southeast is somewhat newer still.

While the population is mixed as to its origin, it would be wrong to assume that the mixture was leading rapidly to assimilation. There is a decided tendency to segregate and with very few exceptions the customs, language and in some respects the farming methods are reproductions of their European prototypes,



A typical Ukrainian Farmstead

and, however undesirable it may appear to the sociologist to have these types persist without modification, it would seem expedient from the point of view of immediate establishment of new settlers to direct members of the different nationalities to settle amongst their own people.

#### *Social Organizations*

The civic organizations of the settlements have proceeded rapidly and practically all settled areas are included in municipalities. Some of the municipalities, notably Birch River, have difficulty in financing the work of administration and development, but with the stabilization of agricultural prices and the changes, noted above, in the type of agriculture followed, together with a thickening up of the settlements, there should be no difficulty in providing the necessary social services.

The district is well served by elementary schools, but only three, Steinbach, Ste. Anne and Waugh, are of intermediate standing and there are no fully fledged high schools.

The western half of the area is well supplied with medical services and there is a well equipped mission hospital at Vita, built by the United Church Home Mission Board, and the Red Cross maintain a service station on the Greater Winnipeg Water District line.



Church buildings are to be found in practically every settlement, but the services for the most part are provided by itinerant clergymen. The Mennonites, however, have their own clergy resident in their villages, the United Church have resident pastors at Vita and Sprague, and there are several Greek rite priests also in the Stuartburn district. Six Roman Catholic priests also reside in this territory.

Social clubs and women's societies are also popular. There is a Woman's Institute at Sprague, but there is no agricultural society in the whole district.

#### *Classification of Unused Lands*

The unused land problem of this area may be said to be three-fold.

(1) There is a great tract of boggy land lying in the unorganized territory which may be classed as sub-marginal from the physical and economic points of view and should remain closed to settlement for the present.

(2) The Bedford Sand Hills can best be utilized as Forest Reserve and the limits of the present reserve be extended.

(3) Some tracts in the organized territory are still in need of drainage, and until this is adequately provided settlers should be discouraged from entering these tracts.

For the present generation it may be taken for granted that the greater part of the unorganized territory in this area is not fit for immediate settlement. Extensive drainage works, expensive road building and difficult clearing in the bush and swampy lands almost preclude the possibility of successful settlement under present agricultural conditions. The only exception to this being an area of approximately 10,000 acres of fine sandy loam and clay loam with a clay subsoil in the vicinity of St. Labre. Some of this land is marred by stony ridges, but it is possible as a mixed farming or summer dairy proposition on a small scale, although it cannot be highly recommended.

Further, a strip of land extending southeastward from Sandilands Forest Reserve as far as Badger on the C.N.R. and comprising about 70,000 acres is of the same type as that already included in the Sandilands Forest Reserve and ought to be reserved for afforestation, as this is the only use that can make such land productive of anything but misery and discontent. The fact that this is a long narrow strip of land, seldom more than four miles wide, makes it difficult of administration, but this difficulty is not insurmountable. Some settlers are already in this area, but they are not making good, many also have left in recent years. A special investigation of the Badger settlement was made by J. H. Ellis and J. A. McGregor, who agreed that this area would be better left for forest growth.

"When the land is first broken a fair crop may be harvested, but subsequent crops will be very poor. Crops could be made to grow with the aid of artificial fertilizer and if the organic content of the soil were improved by growing sweet clover and alfalfa, but at the present time the returns would not pay for this expense." (J.H.E.)

"Since coming to this district these people have eked out an existence by supplementing the revenue from the farm through cutting cordwood and pulpwood in winter and picking blue berries in season. Some of the families earn upwards of \$200.00 from this source during the summer.

"The scarcity of feed in the district reduces the possibility of carrying much livestock, and although this land might be farmed to advantage at some future time the Federal Government would be well advised to add this area to the Sandilands Forest Reserve." (J.A.M.)

In practically all the municipalities there is need for more drainage. Tache municipality has excellent land out of use in township 9, range 6 east, and adjoining territory, only because of lack of drainage, and some land previously farmed has reverted to a wild state because of its sluggishness in spring. The drainage work required would not be expensive and the excellence of the land would ensure the repayment of the capital expenditure. Stuartburn, Piney, Sprague and Birch River all have lands that could be farmed if drained, but the repayment would be slower.

Heavy timber has also impeded settlement in these municipalities and the excessive cost of clearing, especially after the bulk of the merchantable timber has been removed, will make future development even more difficult.



There is still a field for the man with little capital to go into this area and make some revenue out of his bush work while clearing up his land, and there will continue to be abundance of wood for the domestic use of the settlers. The Dominion lands in Sprague, Piney, La Broquerie, Ste. Anne and Birch River might all be classed as possible, but not very desirable homesteads, except for those willing to work in the bush in winter and work their own lands in summer, and be content for many years with a low standard of living.

The Manitoba Dairy Farms Corporation is carrying out a very extensive drainage and clearing project in La Broquerie. The headquarters is at Marchand and approximately 80,000 acres of sandy loam and peaty soils have been drained and settlers are being placed on 160-acre or 320-acre farms with 20 acres cleared and suitable buildings for a small dairy farm.

Land in the immediate vicinity of Piney is of good grade and there are settlement opportunities there sufficient for twenty or more families who will be willing to content themselves with a modest living for the first few years.

Stuartburn has some wet lands which could be settled if drained, but at present there are very few opportunities here except for central Europeans, as the present population is almost exclusively Ukrainian and their success would depend largely on the success of the present Roseau drainage project.

Hanover has some undeveloped land, but the next few years will see this taken up by the younger generation of Mennonites.

The western parts of Tache and Ste. Anne municipalities have opportunities for thirty or more families with capital enough to start dairying on a moderate scale. French, Belgian or Dutch settlers would be most likely to adapt themselves to local conditions here.

Birch River municipality, which is settled by Ukrainians and Poles, could place ten or a dozen families on small holdings suitable for dairying, mixed farming or vegetable growing. Ukrainians with little capital would fit in here or else a group of Danish or Dutch dairy farmers if a sufficient number settled together to provide themselves with a congenial social atmosphere.

In this area, which is best fitted for dairying, land can of course be obtained by homesteading, but, as noted above, most of this is either swampy or difficult to clear and prepare for crop. Other virgin lands can be obtained at prices ranging from \$2.00 in Piney and Sprague municipalities to \$25.00 per acre in Tache and Hanover. Improved land with modest buildings can be obtained as low as \$5.00 per acre, but the better class lands with buildings are generally held at \$30.00 to \$45.00 per acre. The Red River Valley lands are at that price good buying for prospective settlers, but only a few select farms in the eastern portion of this district are at present worth as much as \$30.00 per acre.



Many fine dairy herds are found in Tache, Ste. Anne and La Broquerie Municipalities



## District Number Two

### *The Red River Valley*

This area comprises the municipalities of Portage la Prairie, Grey, Dufferin, Thompson, Stanley, Roland, Rhineland, Montcalm, Franklin, De Salaberry, Ritchot, Morris, Macdonald and Cartier, and has an acreage of 2,810,880, of which 80 per cent. is under plow. Only 168,066 acres are reported as "unused." These lie chiefly in the municipalities east of the Red River and in the sandy stretch, which occupies the southwestern corner of Portage la Prairie and the west side of Grey and Dufferin. Approximately 40 per cent. of this unused land is owned by Manitoba residents and 31 per cent. by foreign owners, while the municipalities concerned have title to 12,840 acres or 7.64 per cent. The municipalities of Roland, Stanley and Rhineland report no unused land.

The total number of farmers in the district is 8,158, of whom 3,551 have over 300 acres of land, the average holding being 294 acres. Rhineland, with its Mennonite population, has 745 holdings of less than 200 acres. Seventy-four per cent. of the farmers are owners and only 16 per cent. are landless tenants; about 20 per cent. of the acreage is farmed on a renting basis, but much of this is rented by neighboring owners. The largest amount of renting is to be found in Macdonald and Morris, where over 30 per cent. of the land is so farmed.

#### *Agricultural Practices*

The Red River Valley was at one time the great wheat producing area of Manitoba, but today, while it is still essentially a grain country, wheat is giving place to other cereals. In 1921, 48 per cent. of the improved land was in wheat, 20 per cent. in barley, 24 per cent. in oats, only 2 per cent. in rye and about the same in flax. The wheat acreage has decreased since then about 43 per cent., flax doubled and fall rye has more than trebled its acreage. The reasons for the rapid change from wheat to other crops are the ravages of stem rust and the sow thistle. It is not to be supposed, however, that wheat is not successfully grown here, for almost one-third of the cereal acreage is in wheat, which yields consistently over 20 bushels per acre, and according to the 1921 Agricultural Survey Report, more than one-third of this grades one northern. From this district almost every year comes the earliest wheat to reach the Winnipeg market. Recent years, however, have seen many honors come to this district for barley and this past year John Wiener, of Miami, captured sweepstakes at the Royal Show in Toronto for barley grown in this area. Many large fields of excellent fodder corn are also to be seen throughout this area, and much attention is now being given to the improvement of pastures, notably in Dufferin and Grey.

The municipalities of Thompson, Roland, Dufferin and Grey have the only tuberculosis free area for cattle in Manitoba. The farmers adjacent to the town of Graysville are successfully growing registered brome grass and this year sold two carloads to Russia. Another noteworthy feature of the district is the successful fruit growing, especially in the Morden district, on the Stevenson farm and on the Dominion Experimental Farm. Many noted breeders of horses, cattle and swine are residents of this district and large numbers of excellent butcher animals are shipped annually to the Winnipeg stockyards. Hog raising is growing in popularity in this area and dairy farming flourishes. Any one of the types of farming can be made successful in this area, grain, dairying or mixed farming, and the Field Husbandry Department of the Agricultural College recommends the following rotations and varieties as most suitable for the soil and climatic conditions:



THE RED RIVER VALLEY

Ownership of "Unused Land"  
Table No. 5

Name of Municipality	Dominion Govt.	Soldier Sett. Board	Hudson's Bay Company	Municipality	Provincial Govt.	Private Owners			TOTAL
						Local	Manitoban	Canadian	Foreign
Portage la Prairie		240	1,840	9,920	1,200	4,000	7,160	5,360	1,840
Grey			1,120			240	14,460	3,920	6,160
Cartier	640						240	720	280
Macdonald						960	8,160	800	15,840
Dufferin	960	1,600	320				5,120	160	5,760
Morris					160	1,120	800	160	6,080
Montcalm			166				480	640	1,040
Franklin	1,280	3,000	640	1,520		320	9,520	640	8,200
Richot							1,360	160	
De Salaberry	1,920		1,280	1,080		1,040	14,120	1,200	6,480
Roland	(No Unused Lands Reported)		480	160	320	480	1,600		800
Thompson	(No Unused Lands Reported)								
Stanley	(No Unused Lands Reported)								
Rhineland									
	5,440 3 24%	4,840 2 88%	5,846 3 48%	12,840 7 64%	1,680 1 00%	8,160 4 85%	63,020 37 50%	13,760 8 19%	52,480 31 22%
									168,066



*Agricultural Zone---Red River Valley*

Rotations		Grain Crops		Hay and	Intertilled
"A"	"B"	Crop	Variety	Pasture	Crops
1. Fallow or corn	Fescue and	Wheat	Mindum	Grasses	Corn:
2. Winter rye, flax or barley, seed down to meadow	alfalfa for six years		Ruby	Meadow fescue	N.W. Dent
			Garnet	Western rye	Man. Flint
3. Fallow and fescue and alfalfa	1. Fallow and sow winter rye	Oats	Marquis		
4. Hay			Banner		
5. Pasture and break	2. Winter rye	Barley	Victory	Clovers:	Roots:
6. Wheat or barley	3. Wheat		O.A.C. 21	Alfalfa	Turnips
	4. Fallow		Canadian	Sweet clover	Mangels
	5. Grain and seed down clover	Rye	Thorpe		
	6. Clover seed or hay	Flax	Winter		
		Peas	Premost		
			Arthur		

*Soil and Topography (1)*

The Red River Valley soil is a rich clay loam, many places heavy enough to be classed as gumbo. The eastern townships in Franklin and De Salaberry, however, lie outside of the Valley proper and here are to be found eroded ridges with considerable stone. The western fringe of the area also shades off into a much lighter type of soil, varying from a loam to a fine sandy loam, with one area of about three townships in which the soil may be classed as fine sandy loam to fine sand. These are the townships in the northwest of the municipality of Grey and southwest of Portage la Prairie.

The topography is flat and this fact has made drainage a considerable problem. The work done in drainage districts numbers 2, 3, 4, 5, 6, 10, 14 and 16, however, has provided adequate relief for all ordinary conditions. Most of the district is well supplied with good water, but in Morris and Macdonald there are some areas where artificial ponds have to be constructed to provide sufficient water for stock.

*Cover*

The banks of the Red and Assiniboine Rivers and their tributaries were and are still wooded with oak, elm and poplar. The greater part of the area was originally prairie.

*Transportation*

This area is traversed by a network of railroads on which adequate service is maintained. These roads are: The C.P.R. east of the Red River, the C.N.R. immediately west of the Red from Winnipeg through Morris to Emerson with a branch running due west from Morris to Somerset, the C.P.R. from Winnipeg to Deloraine, the C.N.R. through Carman, the C.P.R. Glenboro branch through Elm Creek with a branch to Carman. Two lines of the C.N.R. from Winnipeg to Portage la Prairie passing south of the Assiniboine River. Portage la Prairie is the converging point of a number of railroads from the west, no fewer than six western lines meeting there. In addition to these there is the G.N.R. from the south through Gretna and Carman to Portage la Prairie. This line has been abandoned this year by the Great Northern Railroad, but the part between Carman and Plum Coulee is being operated by the C.P.R. Portage la Prairie municipality is also served by the main line of the C.P.R. through Poplar Point, High Bluff and Portage la Prairie.

(1) The information regarding soils both here and in the notes on separate municipalities is adapted from the reports of Dr. C. B. Clevenger, Professor J. H. Ellis and Mr. C. H. Hammar.



All the municipalities with the exception of Rhineland and Roland are under the Good Roads Act and excellent highways traverse the whole area with many miles of gravelled road. Second-class roads are also open practically every mile throughout the area.

#### *Population*

The southern portion of this area is one of the most densely populated in Manitoba, the total population is about 72,000, of whom 18,000 or 25 per cent. are Dutch and German, 12,000 or 16 per cent. are French and Belgian and 9,000 or 12 per cent. of Slavic origin and about 43 per cent. are English. The Germans and Dutch are found in Hanover, Rhineland, Stanley and Morris, while the French and Belgian are settled along the Red and Assiniboine Rivers. Throughout this area are numerous farmers who have migrated from the United States, especially Iowa, Illinois and Indiana.

The municipality of Cartier, which was originally peopled by French and English, has in the last six years received an influx of Hutterian Colonists, about 600 strong. Settlement of this area took place at a very early period, with the exception of the marshy lands, which have more recently been drained.

#### *Social Organization*

The whole district is well served by elementary schools, in addition to which there are 20 Intermediate Schools, five High Schools, two Collegiate Departments and one Collegiate Institute. There are also 15 Consolidated Schools.

Medical services are also well distributed. Winnipeg and St. Boniface serve the northeastern portion, and there are hospitals also at Portage la Prairie, Carman and Morden.

Church organization is also complete and every district is served by resident clergy. Agricultural Societies and Women's Institutes, Farmers' Organizations, Community Clubs and Boys' and Girls' Clubs flourish throughout the area.

### *Notes on the Municipalities*

#### *Ritchot*

Lying as it does wholly within the area of the heavy fertile lacustral and alluvial soils of the Red River Valley and having at the same time better than ordinary drainage, because of its proximity to the Red River, Ritchot has no problem of unused lands. The few river lots that are marked as idle are held for speculative purposes, or some have so heavy a growth of brush that they have not as yet been cleared for cropping.

No poor or light soils were encountered and the heavy crops and general appearance of the country proclaimed its prosperity. One significant feature was noted. Fields of alfalfa and sweet clover were more than usually abundant here and the herds of cattle and farm buildings evidenced a process of change towards a more diversified system of farming. While the soils of the municipality are the world's best for grain production, this change serves to announce that farmers have found it profitable to secure a market for their labor over a longer period than the grain growing type of agriculture affords.

About 1,560 acres all told are listed as unused and no doubt would readily be brought under the plow if the purchase price were suitable; \$30.00 an acre for virgin land seems to a new settler to be a high price, but an experienced farmer with capital could clear and operate this type of land and make the necessary payments, for the land is the very best that can be found.

#### *Franklin*

What has been said of the lands of the municipality of Ritchot applies almost equally well to the part of the municipality of Franklin lying west of a line drawn through Ridgeville and Green Ridge; roughly the western three-fifths of the municipality. Within this western portion, however, occasional parcels of unused land are listed; about 15 sections all told. These were visited and almost invariably

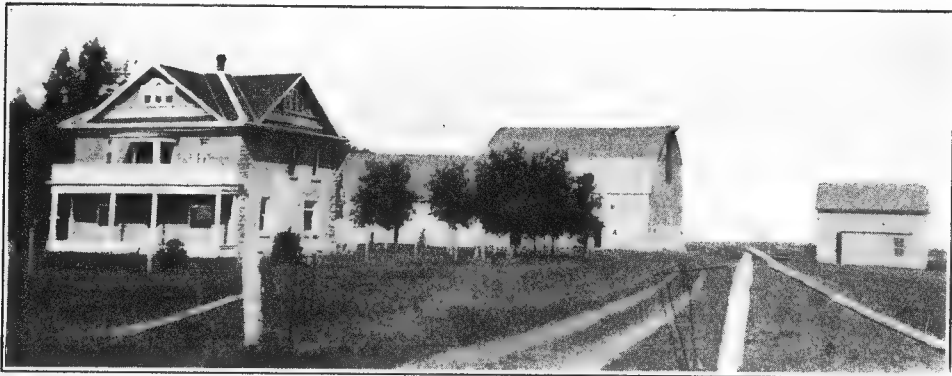


they proved to be low-lying lands for which drainage had just been made adequate or was still needed. A tract of six sections (not all adjacent) south of Dominion City had been given drainage by a huge ditch that had just been completed. The drainage thus afforded should end the problem of unused lands as far as this tract is concerned, for the soil is the usual heavy Red River clay.

The presence of heavy growths of brush and timber impeded the use of a few of the pieces of vacant land along the Roseau River, but inasmuch as these contribute winter wood and pasture there is small need for hurry to bring them under the plow.

Where these heavy fertile soils remain out of use because of lack of drainage alone, it would seem desirable that they be given the necessary drainage as quickly as possible to insure their being brought under cultivation. The cost of draining such land is far less than the cost of clearing the eroded stony soils of the eastern part of the municipality of brush and stones and they are far more valuable and productive when brought under cultivation than the latter.

The eastern two-fifths of the municipality is occupied chiefly by eroded stony soils, but in the south the stones are covered by a layer of sandy loam that is often deep enough to keep the stones below plow depth or deeper. The lands about the Village of Tolstoi are of this latter type, but they yield very quickly on the north to very stony till. The few and isolated pieces of



A Farm Home on the Portage Plains

unused lands south of Tolstoi and Ridgeville may be ignored and were ignored by the survey party. They were very likely tracts where the sandy loam covering was shallow and the stones thus close enough to the surface to obstruct cultivation. Stones below the surface were extremely numerous as attested by shallow stream beds just west of Tolstoi where the top covering of sandy loam had been carried away, leaving exposed a continuous mass of boulders and gravel.

This layer of boulders and gravel, which may be assumed to underlie the most of these sandy loam soils, may act in periods of dry weather to make the soil rather droughty, especially where the surface covering is not very deep. This seemed not to be a serious defect, however, for the farms were rather prosperous on the whole. Inasmuch as these lands are so well south in the province and because the sandy loam is quick and responsive soil in the spring, it would seem that this section could be very well adapted to the growing of seed corn. The limited areas in the province where conditions are such that seed corn can be ripened should place a premium on all corn land. It is seriously suggested that farmers in this region might be greatly benefited by an increased corn acreage. Excellent corn that had a good chance of ripening was seen on heavy soil near Emerson during the visit of the survey.



North of Tolstoi, while sandy loam soils still persist, the land is dominantly stony and this stoniness explains any unused lands in township 2, range 5 east. The same is true of the Senkiw district, chiefly in township 3, range 5 east, where the land is excessively stony and at times ridged.

The existence of a large bog in the centre of township 5, range 3 east, provides hayland from which winter fodder is cut by farmers in this district. A really constructive bit of work would be to drain the bog, much of which is still sadly water logged. The Rat River is close by and would provide an outlet.

The total acreage reported as unused in this municipality is 25,120, or about 11 per cent. of the total area. Of this unused land, only 10,000 acres lying in the western portion of the municipality are to be regarded as first-class agricultural land. The direction of settlers to the stony lands of the eastern portion is not to be recommended, but 20 to 25 families could be placed on unimproved farms in the near future, when the ditching is completed.

#### *De Salaberry Municipality*

Lands kept out of use because of poor drainage occur in the western half of the municipality, the soils of which are a heavy Red River Valley gumbo type, very fertile and productive when properly drained. The tract of poorly drained land of the heavy type occupied approximately 17 sections, all in the vicinity of Dufrost and none of it greatly distant from the Marsh River and hence easily drained. Some of this land was idle merely as the result of a series of wet years and was already being rebroken and fitted for production in the season of 1927. Much of it was in summerfallow when the survey party visited the area and some of it was being broken for a similar purpose. All of it had the usual road ditches, but these were seemingly inadequate to handle the water in wet years. Some recently made ditches showed the effort being put forth to make these lands arable. As a consequence of the soggy condition of the lands, weeds and a piece showing the evidence of alkali appeared.

As in the Franklin districts, these heavy lands are well worthy of being brought into use. The cost of drainage preparatory to cultivation cannot be compared with the cost of clearing timber and stones for the same purposes that must be done on the erosion types that occur further east.

Drainage on these flat lands stands to benefit not only the user and the owner of the drained lands themselves, but the whole community. First it brings in new settlers, who, settling on land of exceptional quality, are quickly able to bear a share of community expenses. Second, in their natural state these low-lying lands almost invariably harbor foul weeds, the seeds of which blow on to adjacent lands and increase the difficulties of weed control. Thirdly, keeping settlers on these excellent lands rather than sending them to the outskirts of settlement keeps the population more compact, the advantages of which are apparent and need not be enumerated. The benefits to owner and user are equally obvious.

The problem of unused lands on such soils as the above is merely one of drainage, for there can be no question of their being capable of supporting profitable agriculture when properly equipped with ditches.

The soils of the eastern portion are a product of the erosion force of the waters of Lake Agassiz and are excessively stony. Those in the municipality of De Salaberry are immediately adjoining those in Franklin and are identical in character.

As in Franklin, there are some apparently successful farms in these lands. The farmers are practising a self-sufficing type of agriculture and cannot be said from all evidences to be very prosperous. Deserted homes were by no means absent and the surprising thing is that more of them were not deserted. The land when once cleared of stones and bush, however, is often very productive.

The great problem of such lands is securing a living while sufficient acreage is being cleared up, so that the farm is self-supporting and profitable. Certainly the greatest use must be made of the natural grazing facilities for dairy and beef



cattle and sheep. It is notable that the type of farming changes abruptly from pure grain raising on the heavy valley lands to dairying and diversified farming on these stony lands, showing the attempts made by the settlers themselves to adapt their system to soil conditions.

Settlement opportunities, therefore, in this municipality are limited to such as are willing to clear stony land for grazing purposes or for dairy farming, and only by providing better drainage for the low lands near the Marais can this fertile land be profitably cultivated.

*Morris, Montcalm and MacDonald*

The unused lands in the municipalities of Morris, Montcalm and MacDonald are almost invariably somewhat lower-lying than the surrounding farms and are wet and soggy in spring. They are mostly used at present for hay. Most of the lands visited could be partially broken and indeed many of the parcels seen had once been farmed. Their most economical use, however, will be for mixed farming purposes. Some slight improvements of the drainage ditches might make these sections good arable farms.



The Red River Valley is Unequaled for Grain Production

In Morris and MacDonald two-thirds of the land listed as unused is held by foreign owners, and as some of these are holding the land at high prices, speculation might be said to be a factor in this area.

The soil survey of Morris municipality, made by Dr. C. B. Clevenger, shows over 95 per cent. of the municipality as clay and clay loam, with only very small portions in the northwest corner and the southwest corner as silty clay loam and silt loam.

In the municipality of Cartier there are only 1,880 acres reported as unused and this would probably be taken up if the price were made attractive.

*Portage la Prairie and Grey*

Portage la Prairie is generally recognized as one of the most prosperous farming districts in Western Canada. The soil varies from the heavy clay loam of the Red River Valley type, which occupies about 50 per cent. of the municipality, to a fine loam with a percentage of sand sufficient to make it easily worked. All of this soil, however, is at present farmed and only in three areas is there any unused land. First, a strip of lake shore on the northern edge of the municipality, varying in width from one mile to four miles and consisting of a reedy marsh with occasional high spots covered with coarse grass. This area is suitable only for pasture. Second, the St. Marks ridge in the northwest corner in townships 13 and 14, range 5, west of the first meridian. This consists of a tract of about 30,000 acres of sandy loam with much stone and gravel, suitable only for summer pasture.



Extending along the lake shore also are marshy lands usable only as grazing tracts. Third, in townships 10 and 11, ranges 6 and 7 west, there is another tract of unused land, consisting chiefly of fine sand. This tract extends into the municipality of Grey, and soil experts who examined this tract have recommended that it be reserved for forest, as no type of agriculture at present practised is likely to succeed permanently.

Topographically this third area presents a somewhat greater relief than the very flat lacustral plain that surrounds it to the east and south, but it is, nevertheless, very level. It may be described as level to slightly undulating, save where the wind has whipped the sand into dunes, which rise to heights of as much as 30 and 40 feet, and extend in low ranges through the area from southeast to northwest. A notable example of these dunes is the one immediately west of the siding of Layland, which rises abruptly on its eastern face to a height of well over 25 feet and whose crest is so wind-whipped and loose in places as to preclude the existence of vegetation.

The slight depressions that occur here and there through the area are ill-drained and usually are filled with a shallow layer of peat. Only in isolated instances does this peat attain a depth so great that plowing will fail to turn up mineral soil. In one swamp of very considerable extent, however, the peat was more than three feet deep. The soils of the unused land in this area are distinctly sandy, with a loamy sand the dominant type, varying, however, from almost pure wind-blown sands in the dunes to heavy sandy loams in the lower places, where lacustral action had deposited the finer separates. Some of these depressions had indeed almost a clay soil, but usually these were covered with peat.

Typical soils of the unused lands were distinctly poor in organic material, with only a shallow leaf mould in timbered districts and the staining, incident upon the presence of decayed organic material, penetrating to relatively shallow depths where the vegetation was more prairie like.

The parent material or the unmodified river-washed and transported separates were a greyish yellow to a yellowish grey as indicated by the lower reaches of the profiles that were examined.

As a livestock region the future of the area is not unhopeful. Drinking water, which is often the limiting factor on adjacent lands, can readily and easily be secured in unlimited amounts here. Wild pasturage, while not abundant, is fair, and sweet clover can be grown for both tame pasture and hay. While no field trials have been made, there seems to be no reason why alfalfa could not be made to do well on nearly all soils, save, perhaps, the dune sands.

Brome grass was grown in the area and under proper cultural methods early flint varieties of corn can be expected to supply fair fodder and silage, which, with the native prairie grasses of the depressions and peats, could be made to yield sufficient winter forage.

#### *Timber and Taxation*

In recommendations for the area the timber growing possibilities must not be overlooked. Portions of it already have excellent stands of mixed poplar, balm of gilead, birch and oak, with the poplar and balm of gilead predominating. While the woods of these species are not particularly valuable, the demand for wood products in the surrounding country is such that one saw mill was found in operation, sawing timber rarely more than eight inches in diameter and averaging less than six. No data is available to show whether or not operation of this mill was profitable, but it is significant that wood lots were at a premium and had been and were sources of income to the settlers. One of the settlers cited the presence of wood for firewood and other purposes as one of the great advantages of the region.

If the region is to be used in parts or as a whole for a timber growing area, however, matters of taxation will have to be considered for the general property



tax, as administered in the Province of Manitoba and levied each year, is wholly unsuited to timber growing operations, which, save on a sustained yield basis, can be expected to produce mature crops only once every half or three-quarters of a century more or less. A timber land and wood lot taxation law similar to that of the State of Michigan might be devised for this country. An alternative would be governmental purchase as a timber reserve. The land of this area, much of which has reverted to the province or is being held by insurance companies on foreclosed mortgages, could be bought very cheaply.



Dune Sand near Layland

Southwest of the main area, stretching from St. Claude to Haywood, northwestward to the river, is a strip of loamy fine sand to fine sandy loam, which has a black to dark greyish brown soil 16 inches deep. It is on this better soil that the Hood Settlement is established. The road from St. Claude northward to the bridge at the Assiniboine traverses this type, and the casual

observer, noting the farm homes and barns along the route, would be misled as to the agricultural value of the other land only a mile or so to the east of the road.

Professor Ellis reports concerning the land in township 10, ranges 6 and 7 west:—

"In my judgment, at the present time, this land is of little agricultural value until it can be improved. Two policies for the better use of this land are suggested:—

"(1) The establishment of a forestry experiment station and nursery, the work of which should be the forestation of the area, and the establishment of a creditable forest reserve. The land should not be abandoned to nature, but nature should be assisted by a competent forester. If this were done, poor agricultural land which is at the present time a trap for uninitiated settlers, would become an asset, not only for the wood that could be raised but also from the standpoint of land improvement.

"(2) As an alternative, if the land is to be used for agricultural purposes, a livestock policy should be adopted and large holdings would be necessary, because the acre carrying capacity would be very low. Sheep and cattle on range would be the initial method of use, but before many head of stock could be carried, some improvement of the range would be desirable. An endeavor might be made to find some method of management that would enable one to get a stand of sweet clover and brome, which could be used for pasture and hay. If improvement crops such as those two could be started, the land could be broken up and probably planted to corn for fall pasture or winter feed, and the land again seeded down. The problem from a soil management point of view is the fact that there is no organic accumulation, and the land is sand rather than soil. A soil would have to be made, that is, organic matter would have to be added, and in the early stages, the growing of plants to supply organic matter would be a problem until such time as organic residue was secured. This building up of the soil would be a slow process and careful husbandry would be required."

#### *Dufferin Municipality*

In Dufferin 13,920 acres of unused land are reported, of which about half is of the type described above in the report of Portage and Grey. This is of little or no agricultural value. The balance of the unused land is fair in quality; that lying to the northeast corner of the municipality being somewhat low and sluggish. Upwards of 40,000 acres of new land has been brought under the plow in this municipality within the last six years and this no doubt represents the "pick of the land."

#### *Thompson Municipality*

Most of the unused lands of this municipality are found along the steep and wooded slopes of the Pembina Hills. Several of these parcels of land are reasonably priced at from \$5.00 to \$10.00 per acre, and should provide a fair chance for successful settlement for those with little capital, but capable of exercising industry.



and patience. The district is a superior one in every way, long-settled and prosperous. These vacant lands would call for pioneering in the midst of progress, but should eventually prove worthy of the labor spent on them. Most of these lands are held by residents in the States, who have owned them for over 20 years. Their willingness to dispose of them at reasonable prices should bring them into use.

A few pieces of land remain unused on the fertile plains around Miami. They range in price from \$20.00 to \$30.00 an acre and should prove paying propositions to settlers with the necessary capital to acquire them.

#### *Rhineland*

This municipality reports no unused land and the expansion of the Mennonite Colonies takes care of any land thrown on the market.

#### *Roland and Stanley*

Roland has approximately 96 per cent. of its total area under the plow, and Stanley has practically all its land improved, with the exception of some rough land and some river bottom, which are used for pasture. A soil map of Stanley, prepared by Dr. C. B. Clevenger, shows about 60 per cent. of the municipality as fine sandy loam, about 20,000 acres of clay loam and about 10,000 acres of loam. The banks of the Pembina River are too steep for agricultural use and there is a small area of stony land in township 3, range 6 west.



Mennonite Village Street

#### *Summary*

In recapitulating it can be said that the whole Red River Valley district is so well settled that only by improvement in the drainage or by breaking up of large holdings in Morris, Macdonald, Roland, Thompson, Dufferin and Portage la Prairie can any thickening of the settlement take place. The stony lands of the eastern edge of Franklin and De Salaberry are not to be recommended, and the sandy area of Grey and southwestern Portage la Prairie should be reserved for forest.

Virgin land in Morris and Macdonald is held at from \$25.00 to \$30.00 per acre and improved land at \$35.00 to \$50.00. The eastern municipalities have virgin lands priced as low as \$5.00 per acre and improved land as high as \$50.00. A settler would require to have considerable capital either to buy the improved land or to finance the necessary improvements on virgin lands.

In all throughout this district the settlement opportunities on the unused lands are very limited, not exceeding 50 families.

With improvements in drainage, such as are suggested above, there would be opportunities for over 100 families, but the greatest opportunities in the Red River Valley are for settlers with capital enough to buy out all or part of the holding of the present settler.



*Winnipeg Suburban Area*

The district immediately surrounding the cities of Winnipeg and St. Boniface has been deliberately omitted from the present study for the reasons stated below.

This district, which may be called the Winnipeg Suburban Area, consists of the cities of Winnipeg and St. Boniface, with the municipalities of Assiniboia, Charleswood, Tuxedo, St. James, Fort Garry, the Kildonans (East and West), St. Paul, St. Vital, Transcona and adjacent portions of the municipalities of MacDonald, Ritchot, Rosser and Springfield. The area involved is almost a quarter of a million acres, of which approximately 75,000 acres are situated in the suburban municipalities. Of this 75,000 acres, about 60,000 has not been subdivided for urban purposes, and only a small fraction of that subdivided is actually used as urban sites. Hundreds of acres of very fertile soil are laid out in streets, furnished with sidewalks, and sometimes having treed boulevards but seldom a house or any building.

The select committee of the Legislature appointed to investigate suburban municipalities adjoining Winnipeg recommends on page 10 of the interim report that a survey be made to determine the boundaries of areas suitable for urban purposes and recommends the cancellation of plans of subdivisions not included in the determined area. In view of this it is probable that much land will be rendered available for agricultural development in this suburban area.

Such facts make it impossible in a preliminary study to classify the land from an agricultural standpoint.

The question of land values, municipal taxation for urban improvements, land speculation and the condition of local markets all have a direct bearing on the problem of the economic use of the suburban lands, and it is hereby recommended that this district should be the object of an intensive study in which experts in Economics (especially taxation and marketing) and in horticulture and dairying should co-operate with the authorities of the municipalities in this area to devise means for making this fertile land more productive of both private and public revenue.



A dairy farm near Winnipeg



## District Number Three

### *Pembina Hills Country*

District number three consists of the municipalities of Pembina, Louise, Roblin, Strathcona, Argyle and Lorne. The southern boundary of this area is the International Boundary Line. The Manitoba escarpment which, in this case, is the Pembina Hills, may be termed the eastern boundary. Just to the north lie the Cypress Hills, and the Tiger Hills to the northwest, while Pelican Lake is the most prominent geographical feature on the western limit of this district.

The area is one fairly distinctive in soil and topography. The Red River Valley soils terminate on the eastern edge, while to the west the soil cover shades off into the typically more treeless and lighter soil of southwestern Manitoba.

The total area comprises 1,210,475 acres of which 2.4 per cent. or 29,229 acres are reported as unused. Of this land the Dominion Government holds 20.8 per cent., or 6,080 acres; the Land Settlement Board, 3.28 per cent., or 960 acres; the Hudson's Bay Company, 6.5 per cent., or 1920 acres; the municipalities, .55 per cent., or 160 acres; the Province of Manitoba, 1.92 per cent, or 560 acres. The balance, 19,549 acres, is held by private owners. This constitutes 66.88 per cent. of the total unused lands, and only 11.22 per cent. of the total unused lands are held by persons residing outside of Canada.

#### *Type of Agriculture Followed*

This area is noted for its high yields of high quality wheat. It is relatively free from weeds, although of late years the sow thistle has, as in other districts, made its presence felt. In 1921, 462,000 acres of wheat were grown or about 97 per cent. of the total acreage. Only about 3 per cent. were in forage crops. In 1925 the wheat acreage was reduced to 331,500 acres. The area in barley has about doubled, while flax has increased 440 per cent. and fall rye decreased 35 per cent.

About 70 per cent. of the farms in this area are 300 acres or over in size. The largest portion of the remainder are quarter-section farms. Nineteen per cent. of the farmers are landless tenants, operating 25 per cent. of the occupied land. The highest per cent. of renters is in the municipalities of Louise and Pembina, where 31 per cent. of the land is rented. This tenancy situation is largely the result of the original settlers retiring to the towns of Manitou and Pilot Mound, or to the City of Winnipeg.



Very few farms are without wood lots and shelter belts in district three



Mixed farming is not making as great strides in the southern municipalities as in the northern portion of this area. The municipality of Strathcona is one of the outstanding mixed farming areas of Manitoba, and both Argyle and Lorne are rapidly increasing their diversification.

It may be said, in conclusion, with respect to the agricultural possibilities of this area that if the farmers cannot make a success here, they cannot be successful anywhere else in Western Canada.

#### *Suggested Crop Rotations*

The type of farming suggested for successful and permanent agriculture in this area is grain and mixed farming, with the following rotations and crops:

### *Agricultural Zone---Southern Drift*

Rotation		Grain Crops		Hay and Pasture		Intertilled Crops	
"A"	"B"	Crop	Var.	Crop	Kind	Crop	Var.
1. Break and fallow	1. Fellow or break.	Wheat:	Mindum	Grasses:	Western	Corn:	
2. Wheat	2. Wheat and		Garnet		Rye	N.W. Dent	
3. Corn or oats in two-drill units	2. Wheat and sow Sweet clover		Marquis		Brome		
4. Wheat	3. Oats on spring plow-	Rye:	Winter	Clovers:	Sweet	Sunflowers:	
5. Oats or barley and seed down.	ing in three-drill units.		Spring		Clover	Mammoth Russ	
6. Hay or pasture.	4. Wheat and seed down.	Oats:	Banner		Alfalfa		
	5. Pasture or hay.		Victory				
		Barley:	O.A.C. 21				

#### *Soil and Topography*

By referring to the map of agricultural zones (Map No. 9) it will be seen that this area constitutes practically the entire zone designated as the Southern Drift. On the whole, the land in this area is of high agricultural value, varying from a clay loam to sandy loam. The topography, however, is gently undulating to hilly and several moraines traverse through the western portion, forming stony ridges and knolls and hillocks, which are difficult to cultivate and predispose to soil drifting. These ridges, together with the wide and deep depression which the Pembina River has cut through, constitute the cause for most of the unused land in this area. The area is singularly favored with good soil, well drained and with ample water supply in most places.

#### *Bush Covering*

Most of this area, excepting the southern portion of the municipalities of Louise and Roblin, was originally covered with a light bush of poplar, willow and oak. In the north towards the hills the tree growth was, and still is, quite heavy, and considerable cordwood is being cut in Lorne and Argyle.

The land is still supporting fine stands of trees for shade and wood lots. In the Pembina Valley and along considerable portions of the Valley edge, the land is heavily wooded.

#### *Drainage*

The main natural drainage course in this area is the Pembina River. This small stream was at one time a mighty river, which carried off the water of Glacial Lake Souris. As a result of its past activities the stream now flows in a deep plain, and in a valley averaging a mile in width.



This river, besides providing excellent drainage for the whole area, is a natural beauty spot of rare occurrence. In its course it now forms into a chain of lakes, notably Rock Lake and Pelican Lake, which provides summer enjoyment for residents in the surrounding territory and many tourists.

#### *Transportation*

The Canadian National and Canadian Pacific both serve this area with a daily train service in and out of the district. The C. N. R. traverses the northern municipalities. Both have branch lines running north and south, so that no land is situated more than six or seven miles from the railroad, and the greater portion of the land is closer even than this.

#### *Social Organization*

This district is particularly well favored with excellent schools and splendid churches.

Apart from the regular schools the Catholic Church maintains splendid institutions at Notre Dame de Lourdes and Swan Lake.

Manitou is the seat of one of the Provincial Normal Schools, and also maintains a splendid high school and consolidated elementary school. All the other villages have equally satisfactory elementary and secondary educational facilities. Alto-



Topography in Tiger Hills northwest of Belmont showing gravelly hillock and grey weathered shale bare of black soil.

gether there are 105 rural schools, 11 intermediate schools and 2 high schools, three of the above being consolidated. The Agricultural Societies and Women's Institutes in this area are notably successful, and the work done amongst the young in school fairs and demonstration teams leaves little to be desired.

Co-operative organizations are well patronized. There are co-operative pool elevators at Kaleida and Somerset. The Belmont Creamery, owned by the local people, is an outstanding example of successful community enterprise, and recently in the Manitou-Darlingford area, steps have been taken to organize the co-operative shipping of livestock.

#### *Population*

The total population of this area is 17,852 or about 9 persons per square mile. The most thickly settled area is in the municipality of Lorne, while the municipality of Strathcona has the most sparse settlement, largely on account of the small village population.

About 70 per cent. of the population is of Anglo-Saxon origin, of which nearly one-half is English, with Scottish and Irish equally contributory to the remainder. Settlers of French and Belgian extraction compose most of the remainder of the population, and are located in the municipality of Lorne, where they make up almost 75 per cent. of the population. The remainder of the total population of this area is of mixed European origin with Icelandic predominating. Nearly 30



per cent. of the population of Argyle are Icelanders who have settled in the vicinity of the town of Baldur.

The splendid agricultural possibilities of this area are witnessed by the fact that there has never been a decrease in the population. A steady healthy growth has taken place since settlement, and continues at the present time.

#### *Unused Land*

Not a great deal can be said concerning the unused lands of this area. Settlement has spread on to all lands where the price of farm products would warrant the extra effort involved in clearing bush or working lands more difficult to cultivate on account of stones or ravines.

Apart from distinctly inferior stony land of which there is very little, the only unused lands of this area are in the wooded valleys in the south or the tree-clad hills in the north. Considerable of the valley lands will be taken up by surrounding settlers as the type of farming changes from grain growing to some more diversified form.



Landscape west of Glenora.

In the north much of what was unused six or seven years ago has recently been cleared and brought under the plow. It is a light, sandy loam, and has done particularly well in producing splendid wheat crops in years when wheat on heavier lands was badly rusted.

The unused land problem in this area is one of making better and greater use of the land now taken up. Considerably more land can be cleared, especially in the northern municipalities. In the south much of the land which is now idle in the midst of a thickly settled district is inferior in quality and only good for pasture. It is held in most cases at a price based on grain farming and will remain out of use until the present holders realize what the proper value is.

The best opportunity for new settlers in this district is the dividing up of the larger farms. Many parcels of land are now farmed as rented portions of occupied farms. These, in many cases, would be better farmed as separate units by new settlers.

The land actually out of use presents, in the main, poor possibilities for settlement.



## District Number Four

### *Southwestern Manitoba*

The municipalities of Turtle Mountain, Morton, Winchester, Brenda, Arthur, Edward, Albert, Cameron, Whitewater and Riverside comprise area four. The total acreage is 1,822,311 acres of which only 5.21 per cent. or 94,986 acres is not a part of any cultivated farm.

This district is commonly known as the Souris Plains, or as Southwestern Manitoba. The early settlers came into the district between 1880 and 1885, chiefly from Ontario. At this time the nearest shipping point was Brandon, a distance of 90 miles or more, and many settlers left owing to the delay in getting a railroad, which they expected to immediately follow settlement. In 1888 the railroad came through what is now Deloraine and Napinka, and for some years many settlers were 20 miles from a shipping point.

Crops were poor up to 1894, but from 1895 to 1915, crops and prices were uniformly good, and the progress made soon gained the district the name of "The Garden of Manitoba."

From 1916 to 1921, owing to a variety of causes, chiefly drought, rust, grasshoppers and soil drifting this area received a serious setback.

Since 1922 crops have been markedly better and even the depression of 1922 and 1923 failed to impede a rapid improvement, which has brought this district to the forefront once more.



A Splendid Oat Crop near Killarney.

### *The Unused Lands*

Comparatively very little land in this area remains unsettled. The amount in Morton and Brenda is practically negligible. The lands reported as unused in Whitewater and Morton are either on the river bank or the edge of Whitewater Lake, and are only good for pasture. In Brenda a small acreage is still out of use, which could be successfully farmed. In Winchester practically all of the unused lands lie on the edge of Turtle Mountain Forest Reserve, and have very little attraction for agricultural purposes. In Turtle Mountain municipality several sections of land are out of use largely it seems on account of absentee ownership. There is no reason why practically all of this land should not be farmed. The prices asked range from \$10 to \$20 an acre. Riverside municipality has very little unused land. The most of it is in the north and lies in the river bottoms or in the hills. Its best use would seem to be pasture land attached to the nearby farms.



The unused lands of Arthur municipality are mainly of two kinds. Lands abandoned during the poor crop years of the war, and lands lying along the Antler River and other streams. The former lands, of which there were considerable five years ago, have mostly all been taken up by nearby farmers, who have profited by their purchases during the past few years of good crops. Most of these lands now unused will likewise be brought under cultivation.

Practically all of the unused lands of Cameron lie immediately west of the Souris River and have much lighter soil than the rest of the municipality. In fact, most of this land can only be used for pasture.

The unused lands of Albert present opportunity for more settlement if the right type of farming is followed. Much of it is owned by persons outside the province, who have held the land for years, expecting a rise in land values. These people would be well advised to sell for any reasonable offer.



Brome Grass does well on the lighter soils of Southwestern Manitoba.

In general it may be said that the unused land problem is one of diminishing importance in this area. The eastern municipalities have had very little land abandonment, while the southwestern district is at present making rapid recovery, and most of the land capable of successful immediate cultivation is being farmed. There are many parcels of land located pretty nearly all over this district which should be farmed, but absentee owners have held the land out of use, hoping for a rise in price. They cannot hope to do so much longer, and this land should come into use in a few years.

It should be noted that only 39 per cent. of the total occupied area is in improved land. With the continued improvement in farm practices that is evidenced in this area in the past few years, a considerably more efficient and greater use of land can be expected.

No farming district could suffer greater afflictions than has southwestern Manitoba, and the fact that the farmers have withstood all these handicaps and are now well on their feet again, augurs well for the permanency and success of farming in this area.

On the unused land at least 100 new settlers can find land in this district. The best opportunities are probably in the municipalities of Turtle Mountain, Arthur and Albert. In addition, and what is more important, settlement in this area could be considerably thickened up as there are undoubtedly many farmers who would be well advised to sell some of their land to good settlers and practise more intensive farming on the remainder of their holdings.



### *The Soil*

Most of the soil in this area is a light, sandy loam, which yields up its plant food and moisture very readily to the crops. Continuous cropping has reduced the organic matter in these soils, which constitutes the main reason for soil drifting.

Properly speaking, southwestern Manitoba is the only portion of the province which can be called prairie. The early explorers found only short grass with no trees and little water, and called it a desert. In the southeast of this area the heavier clay soils of district three extend into parts of the municipalities of Riverside, Turtle Mountain, Morton and Winchester.

When one leaves the zone bounded by the Arrow Hills and the Turtle Mountain, the true Prairie or Souris Short Grass Plains are reached.

### *Climate*

This district seems to be subject to climatic variations, mainly in rainfall, which constitutes a decided problem that can only be overcome by a type of farming peculiarly adapted to this area.

During the years of poor crops a study of weather records show that although the total rainfall was relatively abundant, much of it fell at other than the growing period. This is particularly unfortunate where the soil is such that it does not retain its moisture for any length of time.



There are many fine homes in the Boissevain District.

The Turtle Mountains, which lie in the south, were previously heavily covered with timber. This held the snow, which melted in the spring and flowed down in creeks across the plains to the Souris River. With the settlement of the Mountains the timber has been largely cleared off and the snow has melted in a few days in the spring and comes down the creeks in floods. As summer approaches the creeks dry up.

This fact, coupled with the large acreage in fallow, which radiates heat more rapidly than grass or cropped land, may be responsible for the high temperatures which have affected crops during the ripening time in this area during the recent years.

### *Type of Agriculture*

This area produces a larger percentage of high quality grain than practically any other portion of the province.

The yields of wheat have, however, varied so frequently as to make continuous successful wheat growing somewhat uncertain. From 1884 to 1900 yields were three times below 10 bushels per acre and seven times below 15, while it was three times about 25 bushels. Starting in 1901, however, there was a period of about 10



## UNUSED LANDS OF MANITOBA

years of comparatively high yields, the low yields starting again in 1916. Since 1922 there have been four increasingly successful crop years. Farmers are growing mostly Durum wheat, which admirably suits the lighter soils and a rapid extension is being made in forage crops and livestock.

Since 1921 the wheat acreage has decreased 34 per cent. Flax has increased 634 per cent. and barley, 224 per cent. There has been a 69 per cent. increase in forage crops, and a 40 per cent. increase in potatoes and roots.

The average size of farm in this area is one of the highest in the province, being 435 acres.

The following crops and cropping sequences are outlined by the Field Husbandry Department of the Manitoba Agriculture College as a suggested contribution to permanent agriculture in this area.

### *Agricultural Zone---Southwestern*

Rotations		Grain Crops		Hay and Pasture		Intertilled Crop	
"A"	"B"	Crop.	Var.	Crop	Var.	Crop.	Var.
1. Fallow, corn if needed	1. Fallow	Wheat: Mindum		Grasses: Brome		Corn	
2. Wheat	2. Wheat and sow brome		Garnet		Western	N.W. Dent	
3. Oats in 3 or 2-drill units	3. Brome for hay	Rye: Winter	Marquis		Rye	Man. Flint	
4. Wheat and sow sweet clover	4. Break and backset	Barley: O.A.C. 21	Spring	Clovers: Sweet			
5. Pasture or Seed Alfalfa and brome grass, 1 to 4 years	5. Wheat	Oats: Banner		Alfalfa			
	6. Corn			Annual } Sudan-			
	7. Wheat or oats and seed down			Forage: } grass			
	8. Sweet clover			Prosomillet			
				Hungarian millet			

#### *Population*

This area is a distinctly Anglo-Saxon settlement. Six per cent. are French or Belgian, mostly settled on lands in the Turtle Mountains. Four per cent. are Dutch or German scattered throughout the district, and only one per cent. are from Central Europe.

The population in this district decreased during the years of poor crops (1916-1921) 6.4 per cent. Since 1921, however, there has been a decided comeback shown by an increase of 4.7 per cent.

#### *Community Organizations*

Co-operative effort seems to thrive in times and places of adversity. As a result of the poor crops of the war years, the people of the district came to the conclusion that the best kind of help was self-help, and the best way to overcome a problem was to know what the problem is and thus meet it in the open.

Deloraine may be called the centre of this area and the people in town and country have organized what they term "The District Builders." It is undoubtedly one of the finest things that has arisen spontaneously from rural life in recent years. Much of the progress made in diversifying agriculture in this district and almost all of the credit for lifting the morale of the people can be given to this organization.

Municipal affairs are in excellent condition and a high standard of educational equipment and personnel is in every district.



## District Number Five

### *Brandon District*

This district includes the municipalities of Wallace, Woodworth, Daly, Elton, Whitehead, Cornwallis, Pipestone, Sifton, Glenwood and Oakland.

There are 1,786,741 acres of land in this area, of which only 6.65 per cent. or 118,755 acres are reported as unused. Of this unused land 17.11 per cent. is held by persons resident outside of Canada and 22 per cent. by persons resident outside of Manitoba. The municipalities in this area have title to only 2,160 acres, while local residents own 6,110 acres. About 80 per cent. of the total area is in occupied farms, while only 35 per cent. of the area of these farms is under cultivation.

#### *The Soil*

The soils of this district vary from a fairly heavy sandy loam to a light sandy loam, and in some places sand hills. The municipalities of Elton, Daly, Woodworth and Wallace have, in general, a heavy sandy loam soil easy to work and very fertile. The soils of Whitehead, Cornwallis, Glenwood and Oakland are on the whole a fine sandy loam soil of high agricultural value.

In the municipalities of Pipestone and Sifton the soil is generally not quite so heavy, and in some areas very fine sandy soil is encountered. In the municipality of Cornwallis sand hills of the Spruce Forest Reserve extend west to the Assiniboine River and north to township 10.

In Pipestone municipality sand hills are found in township 8, range 23, and township 9, range 24. The former area (T. 8.-R. 23) of sand extends into the municipality of Woodworth, but is not found north of the Assiniboine. The latter area (T. 9-R. 24) of sand extends into the Glenwood municipality towards the town of Souris, and northeast into the municipality of Whitehead.

The definite boundaries of these sandy areas were not located, but the inspection of unused lands in this district indicate that these sand hills are responsible for much of the unused land.

#### *Agricultural Practices*

District five includes some of the most progressive localities in Manitoba. The City of Brandon and Brandon district may be termed the head of this area if not the farming centre of Manitoba. The city of Brandon has always taken a keen interest in the development of the farming community, as the splendid summer and winter fairs bear witness.

Many of the most prominent livestock men of Manitoba farm in this area. The prize-winning Angus and Hereford cattle, and Clydesdale horses that represent Manitoba at Toronto and Chicago can usually be found there. In 1925 market classes of livestock to the extent of 43,104 head were shipped out of this district.

The famous wheat fields of this district have in late years been giving place to other crops. Since 1921 the wheat acreage has fallen off 31 per cent., while barley has increased 141 per cent. and flax 164 per cent.

The recommendations of the Field Husbandry Department of the Agricultural College for District four are applicable also to this district.

#### *The Unused Lands*

A considerable number of the unused parcels of land in this area were carefully inspected and reasons for their disuse studied.

#### *Whitehead*

In the municipality of Whitehead practically all of the present unused land should be under successful cultivation. They do not differ in any appreciable way from the adjacent farms, except in many cases they show signs of having been poorly farmed at one time. Quack grass is quite a problem in this district, and the unused lands are badly infested. The best of these unused lands, which have





Farm homes in Brandon district



buildings suitable for immediate settlement, should present a reasonable chance for success at \$20.00 an acre on suitable terms. A large percentage of the land is a good buy at \$15.00 an acre, while others not so suitable would range around \$10.00 per acre. As previously stated, most of these lands are badly infested with weeds and would demand considerable effort before they would equal the productive capacity of the adjoining farms.

*Wallace*

In Wallace the unused lands are generally badly broken up with creeks, sloughs and a considerable amount of scrub and stone. Water is difficult to obtain, and those lands once cultivated are now infested with quack grass, Russian thistle and sow thistle. The adjacent farmers, however, are successfully overcoming the quack grass with the spring tooth harrow and growing corn or root crops the following year. With this treatment many fields yielded 40 bushels of wheat to the acre this year. The major portion of these lands are best adapted to mixed farming where the farmers would grow coarse grains chiefly for feed. Wherever this is done and the lands are priced low enough to give a settler a chance to get his land in shape, these lands should afford permanent settlement.

The unused lands of Woodworth municipality lie along the Assiniboine River. North of the River the unused lands are few in number, and would be best used in conjunction with nearby farms as grazing lands. They have wood and water which should add to their value for this purpose. South of the River the lands are poor. Sand hills extend north from township 9, range 24, in Sifton, and constitute the main reasons for the non-use of these lands.

*Pipestone*

The unused lands lying in range 26, townships 8 and 9, are on very light, sandy soil. There are 23 parcels of unused land here, of which number 12 were once farmed. The lands in the west of the municipality could only be classed as medium land, but they are reasonably priced and should afford excellent opportunities for mixed farming. Very little of the land in Pipestone should be idle. The lighter lands to the east will all be used as more pasture and forage crops are needed, while the lands in the west can support settlement immediately.

*Cornwallis*

Practically all of the unused lands of Cornwallis are held by owners resident outside of Canada. The bulk of the lands lie on the sandy area of the Carberry Hills adjoining the Spruce Woods Forest Reserve. It is doubtful whether these lands will ever be better used than in forests. The few scattered parcels of lands elsewhere in the municipality, as far as agricultural possibilities are concerned, should be in use.



Barn and silo, farm of A. J. Moffat, Carrol



*Glenwood, Elton and Daly*

The municipalities of Glenwood and Elton have very little unused land. A few sections northwest of Souris in the sandy lands are not farmed. Straight grain farming can never succeed on them, but some settlers on the same type of soil are adapting themselves through a serious attempt at mixed farming. Daly has considerable unused land, the most of which is cut up by rivers or streams. Its best use will be as pasture attached to adjoining farms. There are a few unused parcels which have been abandoned, which the present owners are willing to sell at reasonable prices and terms.

*Sifton*

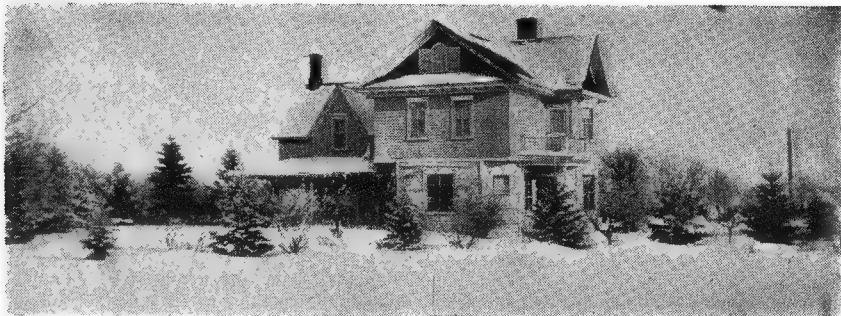
The bulk of the unused lands in Sifton lie in the area of light, sandy soils and sand hills which lie in the east central portion of the municipality and in the northwest in township 9, range 25. About 30 per cent. of these lands might be termed medium, the rest would be classed as poor. The poor soils are best fitted for sheep farming and, in fact, many successful farmers in this area are so using them. Many medium quality lands are being held as low as \$4.00 an acre, and if purchased by adjoining farmers would provide valuable supplementary pasture and hay, if the right forage crops were sown.

*Summary*

In general it may be said of this area that there is considerable land which could be brought under successful cultivation. The present owners are, as a rule, anxious to sell at a reasonable price with fair terms. The whole district is interspersed with sandy soils and prospective settlers should bear this in mind when choosing a location. Land in these lighter soil areas are, however, being successfully farmed at present, but by farmers who realize the limitations of such soil and build their farm programme on this knowledge.

There is ample room for 100 new settlers in this district. Some of the lands on which they might settle have light soil, but resident farmers with careful cultivation and considerable livestock as a sideline are making excellent progress.

A considerable portion of the unused lands, however, can be used successfully only by adjoining farmers for pasture and hay.



A Winter scene in district five



## District Number Six

### *Carberry District*

This area includes the municipalities of North Cypress, South Cypress, North Norfolk, South Norfolk and Victoria. It comprises an area of 1,174,835 acres of which 74.9 per cent. is in occupied farms, of which only 35.52 per cent. is in improved farms, of the total acreage 20.83 per cent. is reported as unused. Of this unused land slightly more than half is included in the Spruce Woods Forest Reserve.

It is largely the land adjoining this Reserve that constitutes the unused land problem of this area. The Reserve itself does not cover all the land which should be retained for forest purposes alone. As a result much homesteading has been done on lands which offer no hope of permanent settlement. Furthermore, considerable amount of the so-called homesteading has been done by persons only anxious to cut off the trees. Thus denuded of its natural cover, the sandy soil drifts badly and vast sand dunes are moving south on to the better agricultural lands. If the Dominion Government persists in allowing settlers on to these lands they should be given at least a section of land and safeguards should be made so that no opportunity is given to the type of person who will merely cut off the trees and then abandon the land.



A farm home near Carberry

The greater portion of the unused lands in this district was inspected and reported on. In general it may be said that only a small portion of the unused lands is fit for agricultural use, and these demand an extensive system of mixed farming.

The unused lands of North Cypress municipality are all situated on light, sandy soil. The lands around Camp Hughes are not suited in any way for crops and should be included in a Forest Reserve under a definite reforestation programme. The unused lands in the eastern portion of the municipality besides being very light in soil are quite rolling and broken up with streams and ravines. They should make good sheep pasture, but it is doubtful whether any more intensive type of farming could prevail for long.

The unused land problem of Victoria and South Cypress municipalities centres around the Spruce Woods Forest Reserve. The problem is complicated by the Assiniboine River, which divides these municipalities in half. North of the Assiniboine and generally along its southern bank the soil is poor and sandy. Settlers, however, have crossed the river and attempted farming, but unsuccessfully. This settlement called for roads and ferries which now in most cases serve no economic use. A few settlers are sticking it out on a few of the more favorable lands on the river flats, but these are isolated and bring in another problem of providing schools for the children.



There should be no attempt to settle on less than a section of land, if at all. It would be better to reserve all land north of the Assiniboine for forest purposes.

In North Norfolk the unused lands are fairly well scattered, with the bulk lying in the lighter and more hilly lands of the south.

The lands in township 10, ranges 9, 10, 11, 12, are mostly light land, with some scrub and hay land, and usually rolling to hilly. These lands are too light to permit of successful grain farming alone. However, water is good and easily obtained, which presents an attraction not found in areas of similar light soil where Ukrainian settlers have made good at mixed farming.

The unused lands of South Norfolk municipality practically all lie in the north-east on the edge of the sandy lands described in report of District Two. As a result they are inferior to the other lands in this municipality, which are first-class. Most of them are covered with considerable scrub and those that lie along the Assiniboine River are badly broken up with ravines. These lands are also on the edge of the Manitoba escarpment or Pembina Hills, which makes them inclined to be hilly and rough. An instance of the effects of absentee ownership can be given here. One parcel of land inspected and termed "sand hills and scrub" is referred to by the owner as "all good for cultivation and worth \$30.00 an acre in virgin state."



Typical landscape in Carberry district

The best economic use of these lands is either as sheep pasture or as wood lots and pasture for adjoining farmers. Their purchase price, however, would have to be considerably lower than that asked at present, if adjoining farmers are to be able to own them.

There are five or six parcels throughout this municipality which have buildings and were once farmed. If purchased reasonably and farmed properly, with considerable emphasis on livestock, they should prove worthy of settlement.

Considered as a whole, prospective settlement in this area is limited. Most of the unused lands lie near the Forest Reserve and should be included in it. Of the other lands the greater proportion could be used best by adjoining farmers. There are a few parcels of land which will support farming of the right type. They are not suited for continuous grain farming, but about 50 settlers willing to practise thrift could become well contented and successful in this district.

#### *Agricultural Practices*

About 96 per cent. of the cultivated land is in cereals. The area devoted to wheat has, however, decreased 40 per cent. since 1921, while barley has increased a like amount. Fall rye is gaining favor on the lighter soils, and as a result has almost tripled its acreage in the last five years.



# CARBERRY DISTRICT

The average yield for wheat is about 17 bushels per acre, and the quality is exceptionally good.

The unoccupied lands which constitute the centre of this area, afford splendid pasture for livestock, and as a result this area keeps more stock than is apparent from casual observation.

The following crop rotation is suggested:—

## *Agricultural Zone---Assiniboine Delta*

Rotations "A"	Rotations "B"	Grain Crops Crop Var.	Hay and Pasture	Intertilled Crops
1. Fallow and corn or fallow substitutes	Brome or alfalfa for 5 years	Wheat: Marquis Garnet Ruby Mindum	Grasses: Brome  Western rye	Corn: N.W. Dent  Man. Flint
2. Wheat and sow brome	1. Fallow or corn			
3. Brome for seed or hay	2. Wheat and sow sweet clover	Rye: Winter Spring	Clovers: Sweet Clover Alfalfa	Oats in two-drill units
4. Brome for seed	3. Pasture or seed and break			
5. Break and backset	4. Wheat	Barley: O.A.C. 21		
6. Wheat	5. Wheat, barley or oats			
7. Oats or barley and sow sweet clover				
8. Sweet clover				

### *Soils*

The soil varies from a fertile sandy loam to pure dune sand. This sand was deposited by the Assiniboine River when its waters emptied into Glacial Lake Agassiz.

The central area is practically all dune sand with surface deposits of peat in some low places. The soil grades off into fertile sandy loam plains in the north and south, with here and there strips of sand running north from the central area.

Moisture is hard to conserve on the agricultural soils of this area, and with poor farming methods the soil has a tendency to drift.

### *Population*

Eighty per cent. of the people are of Anglo-Saxon origin, while practically half of the remainder are from Central Europe. South Cypress municipality has a successful settlement of Scandinavians, with 17 per cent. of the population of this origin.

### *Community Organization*

This area can boast of six successful agricultural societies. A co-operative store at Austin, after some adverse years, is now in a very satisfactory condition. A co-operative elevator, subsidiary to the Wheat Pool, has already been erected at Glenboro. Excellent facilities for elementary and secondary education are found in all the municipalities of this area.



Spruce Woods Forest Reserve



## District Number Seven

### *The Lower Red River District*

This district, which consists of the municipalities of Rosser, St. Francis Xavier, Woodlands, Rockwood and St. Andrews, is small in area, but important from the point of view of settlement opportunities. The total area is 891,654 acres, of which only 60 per cent. is in occupied farms and 18 per cent. in improved lands.

Considering the nearness of this district to the City of Winnipeg and the excellent transportation facilities, both rail and road, the meagre degree of intensity of agricultural use is most remarkable. It must be remembered also that the greater part of this land is Red River Valley clay soil, so that the failure to bring it into agricultural use requires some explanation. The first and most prominent cause of its disuse is lack of drainage, for a great part of Woodlands, the eastern end of Rosser and about one-half of the area of St. Andrews municipality are very sluggish in spring and at any season of heavy rainfall so that its present economic



British Settler's new home, 1926, near Clandeboye

use is for hay and pasture. The drainage work done in drainage district number one has already provided much relief, but an extension of this work would bring thousands of acres of the finest land under the plow.

The second cause is the presence of a few stony areas, one in the west side of Woodlands and a considerable area of Rockwood. These stony areas are similar to the eroded boulder till soils fully described in district one and district eight.

The third cause is speculation, which is quite evident in this area, and there is no doubt that the owners who can afford to hold their lands idle and pay taxes will ultimately obtain high prices for their parcels, but at present the fact that many parcels of unimproved land are held at prices ranging as high as \$100.00 per acre and averaging about \$40.00 per acre distinctly retards development in this district.

Communications received from the owners of well over one hundred parcels of land indicate, however, a willingness on the part of some to sell to bona fide settlers on reasonable terms and the Land Settlement Board has placed several families recently on abandoned Soldier Settler farms at prices and on terms which should give an excellent chance of success to a capable settler.

In Woodlands there are several opportunities for settlers with capital or for assisted settlement. Rockwood has opportunities in the neighborhood of Balmoral, and Rosser has some low lands in the meadow district which could be broken.



St. Andrews presents opportunities for three classes of settler. First, the settler with some capital who wishes to practice dairying; second, the assisted settler who will go into dairying or mixed farming; and third, for the truck farmer who will be content with a small acreage on a part of a river lot.

St. Francis Xavier has only a few vacant parcels and these are suitable either for grain growing or mixed farming. There is excellent shelter for stock on the river lots all along the Assiniboine and livestock has proven a profitable venture for the farmers on lands which are subject to occasional inundation.

The population of this area is preponderatingly of British origin. A few French-Canadians are settled along the Assiniboine, while central and southeastern Europeans are to be found in St. Andrews in truck farming areas and in the northern portion of Rockwood, but the total percentage of these is only 12. A few Dutch and German settlers are making a success of the dairy business. There is also a small group of Scandinavians in Rockwood municipality.

#### *Type of Farming Practised*

In St. Andrews a considerable number of the farms are small and truck gardening and potato growing vie with dairying for first place. More than half of the occupied farms in the whole area are less than 200 acres in extent, although in Rockwood, Rosser and Woodlands there are many very large farms. Wheat, barley and oats are the common grain crops, each occupying approximately 30 per cent. of the improved land in crop.

Flax and fall rye are increasing in popularity. Forage crops do not bulk large in the field crops because of the abundance of wild hay, but in Rockwood and St. Andrews many farmers have been outstandingly successful in growing alfalfa for both hay and seed.

#### *Transportation*

The main line of the C.P.R. runs through Rosser and serves the southern portion of this district. Four other railroads, which run into the interlake district, pass through and give excellent service to this whole area. Three trunk highways and many hundred miles of excellent secondary roads provide transportation facilities which leave little to be desired. The close proximity of the City of Winnipeg, providing a ready market for all kinds of farm produce, makes this area a highly desirable one for prospective settlers. If partially improved land with some buildings can be purchased for less than \$40.00 the settler should have a good chance to make his payments. Where the land is wooded, as in some parts of Rockwood, the cost of clearing is higher and the price of raw land would require to be correspondingly less. Some partially improved farms with light scrub to be cleared before breaking have been sold in St. Andrews at figures ranging from \$25.00 to \$40.00 per acre and the settlers seem satisfied with this price.

The whole district is splendidly equipped with schools, elementary schools within easy reach of all, eight Intermediate Schools, two Collegiate Departments at Teulon and Selkirk and one Collegiate Institute at Stonewall; seven consolidated schools are also located in this district.

Other phases of social life are equally well organized and new settlers will find all necessary public services quite adequate.



A typical settlement opportunity in district seven



## District Number Eight

### *Brokenhead-Whitemouth*

This district, which consists of the municipalities of St. Clements, Brokenhead, Springfield, Lac du Bonnet, Whitemouth and the unorganized territory in townships 10 to 16, ranges 13 to 17 east, has a total acreage of 2,065,920 acres, of which 437,000 acres are in occupied farms, but only slightly over 105,000 acres or about 5 per cent. of the total acreage is improved. About one and a half million acres here are not part of any occupied farm, but nearly 700,000 acres of this is Dominion Government land, which has not been opened for settlement.

In the organized territory, however, there is reported a total of 363,099 acres unused for agricultural purposes, of which 59 per cent. belongs to the Dominion Government, 4.25 per cent. to the Hudson's Bay Company, 23.2 per cent. to residents of Manitoba.



A school in a New-Canadian district

The southern portion of St. Clements municipality, the western half of Springfield and the municipality of Brokenhead are fairly closely settled, and in very few localities are there any large farms.

The total number of farmers was given in 1921 as 3,472, of whom 1,751 had less than 100 acres, 1,240 had between 100 and 200 acres and only 286 had over 300 acres. This is still a good picture of the size of farms for the district, and the average is worked out at 126 acres per farm. Eighty-nine per cent. of the farms are operated by their owners and renting by non-landowning tenants is almost unknown except in the western part of Springfield.

Wheat is again the main crop, occupying 38 per cent. of the improved land, oats is second with 30 per cent., while barley occupied 15 per cent. Hay, chiefly timothy and clover, occupies an important place, especially in the municipalities of Whitemouth and Lac du Bonnet. Wheat and oats are becoming less popular and increasing attention is being paid to forage. Dairying is popular and profitable in Springfield, Brokenhead and Whitemouth. The practice of dairy farming and truck raising may account for the small percentage of abandonment, which is only 3 per cent. The abandonment of farms has been prevalent only in the stony regions of central and eastern Springfield.



*Population*

The total population of the district is over 30,000, of whom 45 per cent. are Central Europeans, chiefly Ukrainians, 34 per cent. are of British origin and about 8 per cent. are Dutch and German.

The settlement of the western end of Springfield and the river front of St. Clements began very early in Manitoba's history, but the composition of the population has been rapidly changing within the last 25 years. Settlement began in the other municipalities between 20 and 30 years ago, but considerable increase in the population did not take place until the great influx of Slav immigrants in the first decade of this century.



Virgin bush land near, Whitemouth

*Soil and Topography (1)*

There are two distinct soil provinces in this area, which may be divided by a line starting from the southeastern corner of township 10, range 6 east, running due north slightly east of Hazelridge in township 11, range 6 east. At Garson in township 13, range 6 east, the line of division swings eastward with the contour levels and passes through the town of Beausejour. Thence it swings east and slightly south to the vicinity of Molson, swinging due north to Buchan, Milner and Brightstone, then dropping southward and eastward to include the valley of the Whitemouth and Winnipeg Rivers, along both of which is a narrow strip of good land, varying from two to four miles in width.

To the west of this line lies a heavy fertile soil, free from stone, and to the east or right of the line the soil is much lighter, often sandy and at times very stony and excessively open. The western soil is practically the same as that of part of the Red River Valley and comparatively little unused land lies in this area. There exist, however, two exceptions. First, some small areas that require draining before being arable, but the cost would not be excessive, while the agri-

(1) The soil work in this area was done by Mr. C. H. Hammar.



cultural success of the subsequent settler is assured. These areas are to be found in Brokenhead at the extreme northeast corner, township 15, range 8 east, also 13 sections lying east and south from Ladywood. In Springfield municipality there are eight sections southwest of Hazelridge and the south half of township 10, range 6 east. In St. Clements the eastern half of township 16, range 8 east, and the northwest corner of the municipality adjoining the lake and Red River. The second exception is the presence of a few ridges of eroded soil with gravel and numerous boulders, such as Bird's Hill ridge, which passes through Tyndall, where the limestone comes very close to the surface and is covered only with a thin layer of poor gravelly soil.



Home of a dairy farmer at Whitemouth

also higher, thus providing building sites, and usually in these ridges good water is found in abundance. The soil of the eastern or erosion area is not to be recommended for agricultural purposes at present, and probably would be best left for timber woodlots and pulpwood.

While these ridges of eroded soil are generally poor agriculturally, the fact that they occur in close proximity to the very best lacustral deposits makes their economic use possible, for in a country where mixed farming is practised the combination of the stone free soils for grain growing and the eroded till for hay and pasture is a prime combination. The eroded soils are

#### *Whitemouth*

The agricultural land of the Whitemouth municipality lies almost wholly in the valley and immediate vicinity of the Whitemouth River. This river has built up a strip of alluvial soil on either bank, extending for varying distances to the east and west (the river flows north), but usually is very narrow, quite often less than a mile in either direction from the river bed. The result is a long narrow strip of excellent soil and this is flanked by shallow peat on either border. The excellent soil is farmed, but the peat has so far been put to little use.

Farther south in the Elma district, township 10, ranges 11 and 12, some farms have encroached on stony soils, which take the place of the bog in this section and there is some farming land on the Bog River.

The problem of the unused lands in Whitemouth is one of utilization of shallow peats overlying in part stony soils and in part excellent river soils. Some attempt to use these peats has been made already and the results are rather encouraging. Excellent growths of hay and other crops were seen on such lands. Where peats are shallow (and they almost invariably are in the Whitemouth area) they are a small defect and many farmers have found it possible to burn them off entirely, though this practice is hardly to be recommended.

A careful inventory of these shallow peat lands will reveal large stretches that with sufficient drainage would develop into excellent agricultural sections.

Farming practices in this section are already of the diversified type. Dairying predominates and the cream and milk is shipped to the Winnipeg market. The cattle are as good as the general run in the province.

It is quite possible that better prices could be had by shipping the whole milk to Winnipeg, though for those who are long distances from shipping points and in times of surplus a creamery would be excellent. Beausejour is nearer to Winnipeg than is Whitemouth, and it has a successful creamery.



## Ownership of "Unused Land"

Table No. 6

Name of Municipality	Dominion Govt.	Soldier Sett. Board	Hudson's Bay Company	Municipality	Provincial Govt.	Private Owners				TOTAL
						Local	Manitoban	Canadian	Foreign	
St. Clements. . . . .	12,570	400	1,250	120	2,928	4,610	17,547	530	7,087	47,042
Lac du Bonnet . . . .	157,510	. . . .	7,520	740	. . . .	. . . .	11,740	. . . .	. . . .	177,510
Brokenhead . . . . .	5,440	. . . .	3,520	1,920	. . . .	760	38,560	1,960	6,160	58,320
Springfield . . . . .	113,720	880	7,120	560	15,680	6,391	48,720	8,068	22,400	223,539
Whitemouth . . . . .	73,859	1,280	6,873	6,760	1,553	. . . .	13,962	480	2,240	107,007
TOTAL UNUSED	363,099 59.19%	2,560 .41%	26,283 4.28%	10,100 1.65%	20,161 3.29%	11,761 1.92%	130,529 21.28%	11,038 1.80%	37,887 6.18%	613,418



As a community in which to begin a campaign for the production of very high-grade dairy products, we know of no better in all Manitoba. If lands all around are to be brought within the margin of cultivation, it will be through some such programme.

To return to the soils: those of the river valley itself are not the black soils of the Red River Valley, but are of a grayish cast, proclaiming their recent condition as one of forest covering. Such soils are not as rich in nitrogen as those formed beneath the prairie vegetation, but this need be no serious defect in a section where beginners do so well. The problems on the stony soils are the same as on similar soils in the other municipalities. The expansion of farming land on these and the peaty soils will proceed slowly and will be successful only as it proceeds intelligently and concomitantly with the development of better farming practices and especially marketing facilities.

#### *Economic Conditions*

The farmers of the Whitemouth district show unmistakable signs of prosperity. Many who took up homesteads in this district, starting with practically no capital and who have been in the district 20 years or more, are now rated as worth over \$20,000. Part of this, of course, is due to increase in the land value, but this also is the result of their own labors.

The average annual increase is something just less than a thousand dollars and this compares favorably with farmers in other sections of the province. It is all the more remarkable when one considers the smallness of the holdings in this district. Their success is due particularly to two factors, first, the practice of mixed farming; second, thrift.

With the further development of the district through the building of roads, and with the adoption of more systematic rotation, and with specialization in dairying, there is no doubt, however, but that Whitemouth can maintain and even increase its prosperity.

#### *Lac du Bonnet*

The western portion in so far as it is settled is farmed by Ukrainians, many of whom came from the neighboring municipality of Brokenhead. Most of them are raising a few cattle and growing hay as a cash crop. The personal factor appears very important here as the older settlers are not very progressive, but the younger generation are more enterprising, clearing larger areas and making a real attempt at farming which promises success in a moderate way.

The east side of the municipality is settled by Swedish residents, with a sprinkling of French-Canadians and British. These settlers were attracted to the district in the first place by the construction work in connection with the Hydro-Electric Power Plants. Many workmen homesteaded the river farms or quarter-sections on the island, between the main channel and the Pinawa channel. The present settlers are either the original homesteaders or workmen who have purchased homesteads from former workmen.

#### *Soil*

The soil is suitable for mixed farming purposes, grows abundant stands of timothy and clover, and in the virgin areas there is a great growth of pea vine wild grasses, such as blue grass and red top. The underlying rock, however, frequently outcrops, and in the centre of the island there are muskegs covering several square miles. The drainage of these, however, would be a comparatively easy task. The covering is spruce, pine, tamarac and poplar, but not many trees now over 12 inches through.



It is difficult to predict the possibilities of this area, for the settlers, with but few exceptions, have been content with very meagre clearings, a small garden, a tame hay meadow and a few acres of feed. They have been content to obtain a very cheap living off the farm while at work on the power plants. Dairy farming has been practised by a few exceptional farmers, but the development of this has been retarded by the lack of transportation. Several farmers still ferry their produce and supplies by row boat and motor boat. With improved transportation facilities, dairying and stock farming would be very feasible. Water is plentiful, shelter is good and the drainage to the river exceptionally fine. Beautiful sites for farmsteads on the river bank have already attracted many, who hope to spend the remainder of their lives among these surroundings. High prices have been paid for some of the river bank farms, from \$30.00 to \$50.00 per acre being common.

### *Age of Settlement*

Some settlers moved in over 20 years ago, but the majority took up land 12 to 15 years ago. Carpenter work seems to have been the previous occupation of most of the Swedes, although all have had previous experience in farming. One great attraction in this district is the plentitude of outside work. These power plants, Point du Bois, Pinawa and Great Falls, furnish steady employment. Granite quarries are a possibility and the development of summer resorts and tourist traffic will give ready market to summer produce. A new organization has recently taken up the exploitation of the possibility of this district as a tourist fishing and hunting centre. This organization, known as the North Eastern Manitoba Development Bureau, is seeking to advertise various attractions of this district and the secretary, Wm. Childs, of Lac du Bonnet, will furnish information on lands and natural resources.

The whole area is suitable for the type of settler who has little capital, is content with moderate standards of living and is willing to supplement his farm income for the first few years. Dairy, cattle, hogs and poultry should rapidly become paying ventures.

### *Intelligent Self-Sufficiency*

A further item in the utilization of lands in a country with soils and physical characteristics like that of the Lac du Bonnet area is intelligent self-sufficiency. Soils of this section lend themselves readily to gardening and it is notable that



Vegetable gardening is profitable in district eight

while the settlers often build themselves excellent log houses and outbuildings, gardens were by no means as conspicuous as could have well been expected. In a country where land clearings are not large and where rather intensive crops should be grown, the lack of a garden is inexcusable, and an enlightened promotion of land settlement and agriculture in the interests of a higher standard of living, which is a necessary preliminary to national assimilation, will include gardening on its agenda.



*Surplus Labor*

While the promotion of items of self-sufficiency is not to be called insignificant, it is by no means as important a problem as the finding of employment for what must, under present conditions, be idle settler labor. Winters in the Lac du Bonnet country are very long and the period of farming relatively short. Without other use for this labor than that to be had during the season of raising grain, the farmer must look to a period of a few short months to make living expenses and a margin for progress. Much energy can, of course, be devoted to cutting firewood and in doing certain tasks incident to the clearing of land.

In order to make use of the idle time many of the settlers go to mining and timber camps or into urban industries for the winters. This practice is hardly to be commended. In the first place, urban labor, which is relatively more plentiful in winter than summer, suffers from the additional competition incident upon the point of view of developing the local community, the loss of this migrant labor slows up progress.

Two ways suggest themselves for making better use of this idle labor time. The first and most obvious is the breeding and keeping of more livestock. Dairying is also to be recommended for this district. Poultry, hogs and sheep, with intelligent handling, may be expected to furnish equally good outlets for the surplus energy. It is to be remembered in this connection that the City of Winnipeg, with a population of nearly a quarter of a million, is within 60 miles of the Lac du Bonnet area. The second alternative use for this surplus winter labor is in the preparing and marketing of timber products.

*A Balanced Combination*

Geological formations and the consequent division into the light and heavy soils lying adjacent to each other make the development of a livestock or diversified farming, together with the growing of timber, an ideal combination in this section of the municipality of Lac du Bonnet. Timber and livestock can then claim the settler's time and energies during winters, giving him a continuous outlet for his labor. With intelligent organization such a combination should enable the country to support a population many times more numerous than the present, with a good standard of living.

The development of the timber and pulpwood industry will also provide a local market for the forage crops, which are indeed the best paying cash crops of both Lac du Bonnet and Whitemouth municipalities.

*Settlement Opportunities*

Several river lots in St. Clements and occasional parcels on the square survey near East Selkirk are idle and this cannot be attributed to any fault of the soil, which is heavy Red River soil and well drained. Most of this, however, is held speculatively at higher prices than settlers are at present willing to pay. Some owners with whom we were in communication were holding parcels at \$55.00 and \$60.00 per acre, and while the land is good this price is somewhat above its present value. Medium land partly improved and with modest buildings can be obtained for \$25.00.

Springfield offers several opportunities along the Brokenhead River and in the neighborhood of Vivian; although the land is stony till there are considerable areas of stone-free soil and some settlers are making fair progress with mixed farming. Springfield, especially the western half, is excellently served by roads and railroads so that there is no difficulty in getting produce of any kind to market. The shipping of whole milk and cream is providing a constant cash income for the farmers there.



# BROKENHEAD-WHITEMOUTH

Brokenhead has also a few excellent opportunities, although the best land has been picked out, and only when drainage is improved will similar land to that already cultivated be available. The parcels which are marred by the presence of stone may, however, prove attractive enough to settlers with little capital who are willing to clear up rough land.

In view of the fact that the district is settled almost exclusively by Central Europeans, new settlers of the same origin are most likely to find the social atmosphere and organization congenial.

*Table of Rotations—Eastern Zone*

Rotations		Grain Crops		Hay and	Intertilled
"A"	"B"	Crop	Var.	Pasture	Crops
1. Grain	Range land or wild hay on balance of farm.	Oats: Banner		Grasses:	Sunflowers:
2. Grain and seed down.		Victory		Meadow fescue	Mammoth Rus.
3. Clover, hay and break.		Barley: O.A.C. 21		Western rye Brome	Roots: Turnips Mangels
4. Roots, potatoes, pasture or hay land on balance or rough land.		Rye		Clovers:	
		Flax: Premost		Alfalfa	
		Fiber		Red clover	
		Peas: Arthur		Alsike	
				Sweet clover	



# District Number Nine

## *The Mid-Lake District*

District Number Nine, which is the district generally referred to as the Mid-Lake area, consists of the municipalities of St. Laurent, Armstrong, Kreuzberg, Gimli, Chatfield, Coldwell, Eriksdale, Woodlea, Bifrost, Siglunes, and the unorganized territory lying between Lake Winnipeg on the east and Lakes Manitoba and Winnipegosis on the west. The portion of this area which has been opened for settlement is approximately four million acres, of which about 1,922,000 acres are in the organized territory.

This is a difficult area to size up from the point of view of settlement opportunities and land utilization, because accurate statistics are not available, and the information in many cases is somewhat out of date. This is due to the fact that:

1. Several municipalities are in the hands of administrators.
2. A considerable portion of the land which was taken up in previous years has been abandoned, and it is difficult, even when one visits the actual parcel, to say whether this abandonment is permanent or whether the settler has left for a season, for many settlers in this area require to supplement the income from their farms with earnings outside the district.
3. A great amount of this territory is unorganized and very little accurate information regarding it is extant.

Considerable attention, however, was given to this area and all existing information carefully studied, so that the following summary is based on the soil survey work done by Professor J. H. Ellis, of the Field Husbandry Department of the Manitoba Agricultural College, who covered the municipalities of St. Laurent, Coldwell, Eriksdale, Woodlea and Siglunes; the reports of Mr. C. S. Prodan, of the Dairy Branch of the Manitoba Department of Agriculture, who covered the municipalities of Armstrong, Kreuzberg, Gimli, Chatfield and Bifrost; the reports of Mr. C. H. Hammar, soil expert, who made a brief reconnaissance of the Gypsumville-Basket Lake territory and was a member of the expedition which travelled by pack train through the unorganized and previously unsurveyed area between Gypsumville and Grand Rapids; the report of Dean McKillican, of the Agricultural College, who visited the Gypsumville district, is included, and the writer's experience in Kreuzberg, Bifrost and Chatfield, and the unorganized territory around the southern portion of Gypsumville and west of Gypsumville. In addition to this, the land classification surveys of the Dominion Department of the Interior, made by Dr. C. S. MacDonald in 1920 and Dr. S. D. Fawcett in 1922, have been carefully studied, together with the map of the main soil types published by the same department.

### *Land Utilization, and Type of Farming Practised*

Somewhat over 900,000 acres of this area are in occupied farms or about 19 per cent. of the total area, but there are only in the neighborhood of 70,000 acres of improved land or about 1.4 per cent. of the total area. Some of this land has not yet been opened for settlement by the Dominion Government, and many townships that were tentatively opened have recently been withdrawn.

The chief grain crop of the district is oats, although some wheat, barley and rye are to be found. Improved pasture and forage crops also take up considerable acreage, especially in the municipalities of Coldwell, Eriksdale and Bifrost. During the war and post-war inflation wheat was grown to a considerable extent, but dairying and stock raising has always been the mainstay of this district.



Sheep raising in Coldwell, Eriksdale and Bifrost has been consistently engaged in, especially by the Scandinavian settlers, who are still paying considerable attention to this branch, which is more than a side line with most of them.

### *Physiography*

The whole of this area lies within the bed of old Lake Agassiz, and the soil can be characterized in general as boulder till modified by the action of lake water, showing many gravel deposits and stony ridges with considerable pockets of peat and muck. The underlying rock is mostly limestone, which outcrops or comes very near the surface in many cases, especially in the Gypsumville area. On the east side of this area the underlying rock is granite, which also frequently outcrops. The top is generally flat with a slight slope toward the north, but with insufficient slope to provide adequate drainage.

The annual precipitation for this area is from 18 to 29 inches. This is above the average for the province, but precipitation seems to be rather irregular, and the character of the soil makes slight variations from the norm very important, as the soil is droughty, but lack of natural or artificial drainage makes wet seasons just as disastrous as drought.

The district also is subject to late spring and early fall frosts, notably in the year 1924, but the average growing season is from 120 to 130 days, according to Dominion Meteorological data, which makes this district comparable with the Dauphin district and gives it a slight advantage over the Riding Mountain district climatologically.

### *Population*

The total population of this area is about 28,000, of whom about 40 per cent. are of Slavic origin, 24 per cent. Scandinavian, 21 per cent. are of British origin, 8 per cent. are French and Belgian and 5 per cent. are German. The municipality of Kreuzberg is almost wholly Slavic, Bifrost has an equal amount of Scandinavians



Soil profile, southwest of Lundar; drift soil on limestone rock.



Ownership of "Unused Land"  
Table No. 7

Name of Municipality	Dominion Govt.	Soldier Sett. Board	Hudson's Bay Company	Municipality	Provincial Govt.	Private Owners				TOTAL
						Local	Mani- toban	Canadian	Foreign	
Siglunes.....	34,610	4,215	8,950	1,205	.....	3,570	14,610	3,040	720	70,920
Woodlea.....	38,640	160	6,560	.....	940	13,520	20,260	1,280	5,760	87,120
Eriksdale.....	12,960	6,280	10,400	.....	.....	54,600	27,312	1,920	4,000	117,472
Coldwell.....	20,320	8,480	7,040	5,440	4,640	2,240	8,160	960	6,240	63,520
St. Laurent.....	640	2,240	2,880	.....	320	2,860	20,680	9,330	16,920	55,870
Armstrong.....	43,680	4,320	6,080	12,960	7,360	3,200	23,520	8,560	5,600	115,280
Chatfield.....	50,240	1,760	6,080	1,600	320	1,600	320	.....	5,280	67,200
Bifrost.....	65,440	.....	9,440	160	2,720	30,813	6,035	800	607	116,015
Kreuzberg.....	50,080	880	1,600	320	.....	4,240	3,520	1,120	1,440	63,200
Gimli.....	2,240	160	1,120	3,840	.....	480	2,400	480	320	11,040
Total Unused } Organized Area }	318,850 41.54%	28,495 3.71%	60,150 7.84%	25,525 3.33%	16,300 2.12%	117,123 15.26%	126,817 16.52%	27,490 3.58%	46,887 6.10%	767,637

Unorganized Area

	2,528,500	.....	114,140	.....	17,600	.....	.....	.....	.....	
TOTAL UNUSED	2,847,350 83.06%	28,495 .83%	174,290 5.08%	25,525 .74%	33,900 1.00%	117,123 3.42%	126,817 3.70%	27,490 .80%	46,887 1.37%	3,427,877



and Slavs, which make up together about 80 per cent. of the population. Coldwell is largely Scandinavian, while Eriksdale has 59 per cent. of its population of British origin, and the balance chiefly Scandinavian.

The mixed character of the population of this area renders the work of education and the development of the municipal life somewhat difficult, but where British and Scandinavians predominate, municipal organization and co-operative enterprises have made some progress. Agricultural societies hold fairs at Eriksdale and Arborg, while three co-operative societies have been incorporated in Bifrost municipality.

#### *Transportation*

This area is well served by railroad lines. The C.P.R. Riverton branch skirts the western shores of Lake Winnipeg. The Arborg line of the same railroad traverses the municipalities of Kreuzberg and Bifrost. The C.N.R. serves Armstrong and Chatfield municipalities with the Hodgson branch, which runs as far north as township 26, and the Gypsumville line of the C.N.R. serves the municipalities bordering on Lake Manitoba and the unorganized territory as far north as township 32.



Type of cattle kept near St. Laurent.

Road building in this Mid-Lake area proceeded very rapidly, especially in boom years, but the majority of the roads are only second or third class, the chief exception being the Winnipeg Beach-Gimli road. The Provincial Government has given great assistance in both the organized and unorganized territory for the building of graded and other roads, but much remains to be done before even the trunk roads can be travelled on in any weather. Some portions of the settlements have practically no summer roads, and this, even in the boom years, somewhat retarded their development.

#### *St. Laurent Municipality*

The municipality of St. Laurent is a sparsely settled tract of land lying between Lake Manitoba and Shoal Lake. The two towns, St. Laurent and Oak Point, are located near Lake Manitoba, and the former town has a number of summer cottages on the lake front. The land adjacent to the lake is all low-lying meadow land, but passes into park country and poplar woods in the east. The soil is shallow black loam, underlaid by a mottled flesh-colored sandy clay or else becomes gray clay. The surface varies considerably also in the amount of stone and gravel contained. Small tracts of shallow peat and muck are found and also some strips of sand. There is very little relief and in wet seasons the water becomes ponded and prevents the land from being used for crop growing.



Some of the land previously cultivated has been allowed to revert, the reasons for this apparently being:

1. The presence of stone increases the cost of tillage.
2. Gravelly soil increases the liability to drought damage.
3. Absence of drainage makes inundation too frequent.
4. The surface soil is shallow and requires improvement in order to stand continuous cropping.
5. Weeds are difficult to control on this soil.

The soil, nevertheless, is not to be regarded as unfit for farming, but this will remain essentially a grazing country and can become a good dairy country if knowledge of conditions and good soil husbandry are combined with thrift and hard work. Sheep raising and hog feeding as side lines are of material assistance to farmers and settlers on this land.

*Coldwell*

The soil of Coldwell is very much like that of St. Laurent, but is not so low lying. Boulders and gravel, however, are present, in some places, in such quantities that tillage is out of the question. The country has a beautiful park-like aspect and



Farm home in Coldwell. Note old house in the rear.

in the open spaces one finds large herds of splendid dairy cattle. In townships 19 and 20, ranges 3 and 4 west, peaty areas and meadows are quite common, while low-lying ridges with broad swales are characteristic of the whole district.

The population, which is of Icelandic extraction, devotes itself chiefly to dairying and sheep raising, and in the winter many of the farmers obtain considerable income from fishing.

One of the chief problems in this area, which a few of the farmers have succeeded in solving, is the growing of winter feed for the dairy cattle. Many have been moderately successful in growing small patches of alfalfa and sweet clover. While others have used sunflower and silage. This area would be greatly benefited by the establishment of an experimental or demonstration station, which could bear the cost of the necessary experimentation with winter feed.

Of all the districts within this Mid-Lake area there is none better in general appearance than the Lundar area. Many fine farm homes, good buildings and splendid herds of cattle are to be seen, and the thrifty Scandinavians never fail to make good here. The settlement opportunities are chiefly toward the east side of the municipality, and here the soil is not essentially poorer than that at present



farmed, and the obtaining of a plentiful supply of water is never a problem. If, however, all the land at present unused were to be settled up, farmers would have increasing difficulty with winter feed, and it would seem feasible to recommend that the low-lying land be utilized for pasture or hay only, until it has been successfully demonstrated that the growing of silage crops will be profitable.

*Eriksdale, Woodlea and Siglunes:*

*Physical Features*

The physical features are similar to those described in the Coldwell-St. Laurent reports. The land is relatively flat with no relief or natural drainage channels. The altitudes within the area inspected as given by the Topographical Survey of Canada show that Lake Manitoba has an altitude of 814 feet and the towns along the railway as follows: Eriksdale, 872 feet; Deerhorn, 863 feet; Mulvihill, 882 feet; Camper, 882 feet; Ashern, 883 feet. The fall from these points is, therefore, the difference between these figures and 814. As the topography is level to undulating it follows that much of the land is naturally poorly drained. Next to the lake the low-lying portions become intermittent ponds or hay meadows, depending upon whether the season is wet or dry, while the depressions in the land some



Typical park country at Lundar.

distance from the lake are hay swales or peat, which are often wet for some portion of the year. The whole countryside is a lake-washed floor of drift. This drift varies in thickness. In some places the limestone rock is covered with only an inch or so of earth, while on adjacent lands a farmer may have a well 20 to 30 feet deep in the drift.

A considerable portion of the country apparently has rock under the surface at from 4 to 6 or 8 feet. It (especially in the eastern portion around Eriksdale) contains a certain amount of gravel mixed with soil, that artificial drainage by ditches could easily be overdone and the soil dried too much, especially if fires or clearing removed a considerable quantity of the woods.

The vegetation changes slightly from the park and poplar woods mentioned in the Coldwell report. From Eriksdale northward spruce is found and mixed woods take the place of the solid woods of aspen and willow found in the south. The larger part of the country was evidently fairly heavily wooded, but several severe fires have swept over the area, and at the present time areas may be found with trees of varying age, depending upon the time elapsed since the former growths were burnt. In reference to these fires, Mr. Sigfusson, of Lundar, gave the following information from memory: A fire in 1887 cleaned most of the country from Reaburn to Fairford River. Other fires not so widespread were experienced in 1883, 1884, 1890, 1911 or 1912, and the Mulvihill fire of six years ago.



The woods are in general a fairly thick stand and of varying vigor. Where the soil is deeper a more vigorous growth is observed, and on the gravelly lake-washed ridges, where the drift is thin, a more sparse, scrubby growth is seen. As this latter kind was more easily cleared, some settlers cleared this part of this land in preference to the heavy scrub, with the result that some of them have tried to farm the poorer instead of the best land. Some park or partially open country is found near Dog Lake, but in general the open areas are meadow and more or less poorly drained.

#### *Soil*

According to Prof. Ellis the soils in the Eriksdale municipality are a continuation of the soils found in St. Laurent and Coldwell municipalities, but the surface soil is slightly shallower and contains a great deal of gravel and small stones just below the surface. One field freshly broken showed that the plow buried all the dark loam of the surface and turned small stone to the top, so that the field from the distance had the appearance of being covered with birds' eggs. This, of course, is an extreme case, but it shows what must be looked for and avoided by the incoming settler. Some peat and muck areas are also found.

#### *Type of Agriculture Practised*

"In the municipality of Eriksdale there has been a more earnest attempt to farm than on the land to the south. There is more cleared land and when the land was first broken some good crops were secured. After the first or second crop poor results were obtained, probably because of the thin surface soil, and because of the fact that the strong concentration of lime and soluble salts, together with the stone and the comparative nearness of the bed rock to the surface, make crop on the soils of this area very susceptible to injury in a dry period. This does not mean that rainfall is usually deficient, because on the contrary, much of the land may become too wet to grow satisfactory grain crops. Several settlers stated that for three years they had been drowned out and that this year they were dried out.

"While it is true that there are some real soil problems that demand investigation, yet, I became convinced from inspection of the land and of the vegetation that it is possible to grow satisfactory crops if the right kind of crops are chosen, and the right methods of management are mastered. Much of the disappointment experienced by some of the settlers is due to attempting the production of cash grain in a country not naturally suited to wheat production. Here in the south of the lake area, the men who are making a livelihood are those who are milking cows.

"In Woodlea there is less cultivated land, but some farming is being followed in the Ashern, Zant and the Colcleugh districts. This farming is largely dairying, and some of the settlers who are milking from 12 to 20 good cows each stated they were able to make a satisfactory living.



Homestead at Lily Bay.



## THE MID-LAKE DISTRICT

Between Dog Lake, Dog Creek and Lake Manitoba the land is largely settled by people of Icelandic extraction. Cattle are grazed in summer on the range, in the park and woods, and fed on wild hay in the winter. A few sheep are also grazed in the summer. Little or no crop is grown. Cream is shipped by truck twice a week to Eriksdale and some farmers along the lake front ship to Steep Rock by motor boat. In the winter the men fish, the fish being hauled immediately to the store of Vogar where they are packed and delivered by sleigh to rail at Mulvihill.

"Apparently the men who are making the best agricultural uses of the country are the Dutch settlers in the Zant district. The Baker farm was visited in this district, 11 miles from Ashern. This farm is a splendid example of what may be done on the less stony and gravelly soil. Mr. Baker has a half-section and he is milking 12 cows of Holstein blood, of which he keeps milk records. The cream is shipped to Ashern and has graded table cream all summer. Poultry are also kept, and last year Mr. Baker sold \$200.00 worth of garden produce. Some of the best drained land is cleared and farmed, the stones are kept picked off, and the fields show care and good husbandry. The accompanying photographs show some of the crops grown, and illustrate the fact that satisfactory feed crops can be grown if the right place is chosen and the land manured and given good cultivation. Swedes, mangles and a small field of alfalfa, the seed of which was obtained from the Forage Crop Car, are shown, and also part of the splendid garden which is rotated with potatoes. Some grain is also grown, and for a dry year gave indications of a fair yield. The farms in this district illustrate the importance of the personal equation." (J.H.E.)

Dr. Fawcett in his soil survey, which covers township 25, ranges 4, 5, 6, 7, 8, 9 west, shows the soil of this strip to vary from a clay loam in the west, through loam to a sandy loam in the east of these municipalities, with peaty areas occurring throughout.

Settlement opportunities in this area are somewhat limited because, owing to the character of the soil, a large acreage is required to farm, certainly not less than a half-section, and only expert dairymen should be induced to settle here.

### *Armstrong and Chatfield*

The municipality of Armstrong has only a very small fraction of its area under cultivation, probably at this present writing about 3 per cent. A considerable portion of the land listed as unused was once farmed and recently abandoned. The area was settled by farmers of British and Scandinavian extraction with a sprinkling of French and Slav, but the recent agricultural depression has forced over 60 per cent. of these to move out.



Abandoned farm land north of Camper.



The great number of abandoned farms, the rapid deterioration of the buildings thereon and the spread of weeds is further discouraging to those settlers left on the land. The soil is stony, hard to clear, difficult to cultivate, and only those settlers who are milking cows and selling dairy products are making a living. It appears, also, that it will be difficult to increase the number of milk cows because of the limited amount of arable land and the low yielding capacity of this land. Also due to the wooded characteristic of the wild land, which renders the pasture in some areas rather scant, it would appear that this land would be better set apart to the raising of beef and that settlers going into this livestock venture should have large holdings, in order to provide sufficient range. In the neighborhood of Inwood more intensive dairy farming might be feasible, but the prospects of success are not bright.



Swedes and mangels for winter cattle feed.

Golden Bantam Corn, August 27.

Farm of H. Baker, Zant.

Immediately north of Armstrong lies the municipality of Chatfield, where the land is similar and many people have abandoned their attempts at farming. Only the more industrious, resourceful and thrifty farmer can make a living in this district, and most of those who demand even a moderate standard of living have already moved out. A year ago over 30 families were brought from Holland to the Inwood district, but only two of these have remained.

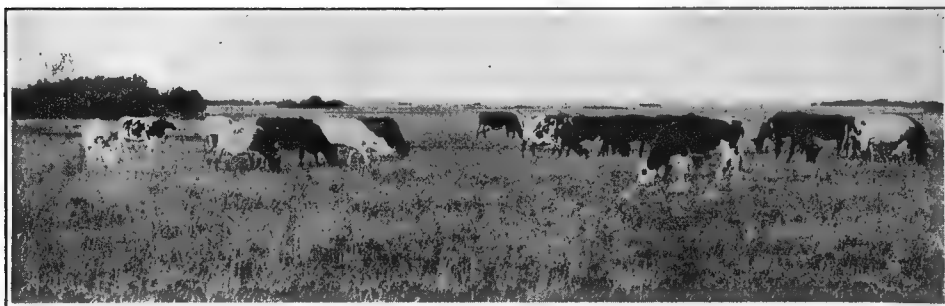
The eastern portion of Chatfield has a strip of fairly fertile land where the settlers are doing well and a few new comers could be accommodated. In this area, however, the summer frosts of 1924, the inundations of 1925 and the drought of 1926 are the reasons for the crop failures. The north row of townships in Chatfield municipality are covered by soil surveys of Dr. Fawcett, whose map shows the area west of Broad Valley to be sandy loam with a percentage of gravel, and the land east of Broad Valley to be loamy with some clay loam and some peat.

#### *Kreuzberg*

The land which used to be in Kreuzberg municipality is a very stony loam with patches of sandy loam of fair fertility, and considerable areas of peat and muck. The arable patches are not extensive on the average quarter-section,



neither are they numerous. Also illustrative of the settlement opportunities, Dr. Fawcett's report may be quoted. In townships 19, 20, 21, ranges 1 and 2 east, there are listed only 22 quarter-sections as having any possible attraction for settlers. This report of Dr. Fawcett's, however, was made when the district was not very well settled, and many of the farms which had small patches of cultivated land on them have since been abandoned. These might also prove attractive to the right type of settler. The majority of settlers who have left this area have gone because cordwood is gone. Besides that, having no reasonable income from their farms, due to small acreage, they were unable to pay taxes, from \$45.00 to \$70.00 per quarter-section. A number of them left the district, but few have come in. Since this municipality is in the hands of the receivers, the taxes range from \$19.00 to \$25.00 per quarter-section. Settlers are satisfied with such reduction, but still they have a hard time to make a living on such land. A few settlers left Meleb to look for land in Saskatchewan. In the area around Meleb, Fraserwood and Malonton settlers have difficulty in obtaining sufficient water in their surface water wells. Up to 1920 settlers here depended on cordwood and sales of hay. Now nearly all depend on cream shipments. Since there is difficulty in obtaining water, it may be advisable to place a well-drilling outfit in this district and drill wells for the settlers. Those unable to pay cash for the drilling may be given credit to pay in instalments. This is the desire expressed by some settlers.



Good range if not too closely pastured; note alkali in foreground. Near Oak Point

In Bifrost municipality around Vidir the soil is sandy loam with low peaty places. The settlers here are doing fairly well. The greatest drawbacks are very expensive clearing and high taxes. The area around Okno and Rosenberg has high land. The soil is sandy loam with stones. From these districts about half of the number of settlers have moved. The soil is of poor fertility. Roads are poor, the nearest railway station is from 10 to 15 miles distant, high taxes of \$40.00 to \$70.00 per quarter-section and the inability to meet payments on loans compelled settlers to move out of these districts. More settlers intend to move out. In Morweena district settlers are staying on the land because they have some cordwood left. It seems that the municipalities of Kreuzberg and the north-western part of Bifrost are in the stage of transition from cordwood cutting to a real attempt at farming. Some men are unable to adapt themselves to the necessary methods of farming, so they have to leave the district. Some attempted grain growing and borrowed money for clearing more land and failed, because the soil is not fit for profitable grain growing. These districts are best adapted to stock raising. It may be that the solution for present settlement in this country would be allotting half a section of land to each settler at taxes from \$30.00 to



\$60.00. On one half-section a settler would find enough acreage of tillable land to grow feed for stock, the balance of the land could be used as cheap wild pasture for the livestock.

In Gimli municipality settlers are doing satisfactorily. In the western portion of this municipality the soil is light and stony. The settlers have small acreage under cultivation. The chief source of cash is from sales of dairy products, poultry and garden products at the Winnipeg Beach, Sandy Hook, Gimli and Camp Morton summer resorts. There is a need, however, of education among the settlers in production and preparing for the market of some of the produce sold at the above mentioned summer resorts. The northern part of the municipality of Gimli is low and the soil is sandy with stony ridges. Settlers in this section depend mostly on cordwood and a few head of cattle.



Progress in homesteading; original settler's shack in foreground. Near Arborg

#### *Bifrost Municipality*

Bifrost municipality, which has practically been covered by Dr. Fawcett, has a large number of prosperous settlers along the Icelandic River. The land immediately to the north of Arborg is fertile clay loam. Within this clay loam area there are settlement opportunities sufficient to accommodate 15 to 20 families who by following the type of agriculture at present practised in the district would have a reasonable chance of success. The northeast portion of this municipality, which lies around Washow Bay, is peaty and low lying, and the recommendation of Dr. Fawcett is that this should be included in the proposed Washow Forest Reserve. The land immediately north of Bifrost municipality, he also suggests, should be included in this reserve.

#### *The Unorganized Territory*

Concerning the unorganized territory in this area it may be said that whenever the demand for agricultural land became again acute, there are several areas within this territory that may well attract a new settler. Along the Gypsumville line the best lands are to be found in the neighborhood of Lake St. Martin, what is known as the Fairford district, but improved drainage is necessary before any considerable amount of new land can come under the plow. This district has the advantage of transportation facilities already provided with the C.N.R. Gypsumville branch, as well as schools, some roads and other social facilities.



## THE MID-LAKE DISTRICT

A second area which might attract a settler is the Basket Lake district, immediately west of Gypsumville, but here the amount of land is limited, and its distance from present railroad facilities and lack of good roads will retard settlement. Concerning this district, Dean McKillican says:

"The land looked at lay in the south half of townships 32 of ranges 9, 10 and 11, and the northeast part of 31, 10.

"This land varied considerably in value for agriculture, and no attempt has been made to observe the boundaries of the different soil types. Just at Gypsumville the surface is stony and the soil shallow, but within a mile to the southwest better conditions are found. Going westward one passes into another stonier strip running from north to south, with a westerly slant to the north and centering about the middle of range 10. Passing this we came to another better area lying between the north end of Lake Manitoba (Portage Bay) and Basket Lake. Returning on a more southerly line (Davis Point to St. Martin) we crossed the same stony strip and also found the southeast corner toward St. Martin rather low, wet and boggy.

"The better land near Gypsumville seems fairly settled, so far as mere occupancy goes, but is only cleared and cultivated to a very low percentage. The other desirable block out toward Basket Lake seemed to have a considerable amount of unoccupied land, which is quite suitable for farming. This land has a surface soil of black or dark brown loam, about 8 to 10 inches thick, with a mottled clay below. It is not as rich as the best prairie soil, but is well worth being farmed. There is some loose stone, but not enough to be a serious obstacle. It is a district that should be developed into a good dairying and mixed farming country in time.

"The chief obstacles to settlement are: First, the difficulty and cost of clearing the land, which has mostly been stripped of revenue-producing cordwood, but has still the brush and stumps.

"Second, the need of better roads, and the distance of the best land from market; and, third, better drainage is needed for wet seasons.

"I think if a good road were put in straight west from Gypsumville to Basket Lake, and drainage outlets through to Lake Manitoba improved, that settlers might safely be encouraged to fill in the best of this land, but they should be kept off the stony ridges."

Beyond the Basket Lake country lies the Waterhen district, which might prove attractive to those who wish to go into a ranching business, as there is considerable land which could be placed under the plow and if the holdings were large this would provide feed. However, the absence of transportation facilities is a great drawback.

The district immediately south of the Peguis Indian Reserve also proved attractive in the boom days to settlers of various nationalities, and might again,



A road in an area where much abandonment has taken place



with a change in economic conditions, be profitably developed, as the soil is fairly fertile and varies from clay to sandy loam with some stony peaty patches throughout.

The interior part of this unorganized territory, that is the portion which lies between the Fisher River and the Lake St. Martin area, should not be opened up for settlement at present, and perhaps its best use permanently would be as a timber area.

North of this unorganized territory lies a considerable portion of unsurveyed land between Lakes Winnipeg and Winnipegosis. Into this territory a special expedition was sent, to which Mr. C. H. Hammar was attached as soil expert. His report may be briefly summarized as follows:

In the interior area north of township 36, and reaching as far as the Saskatchewan River, there is very little agricultural land. Where it does occur it is so limited in extent that the settlements would be isolated and it would be difficult for them to maintain a social life and impossible to pay for the necessary improvements to give them access to the outside world. Along the shores of the lakes, however, especially in the lands drained by the streams flowing into those lakes, there are some opportunities that may in future prove attractive, but would not be sufficient to warrant the extension of the railroads into this area. The best that could be said would be that if the railroad were built skirting the shores of Lake Winnipeg the fishing industry might be developed, and timber and pulpwood areas around Grand Rapids could be profitably worked, and those engaged in these occupations would find sufficient land in which to grow crops and garden truck so as to become agriculturally self-supporting. The development of the lumber and fishing industry is not within the scope of our present investigation, but there is without doubt room for developing a more intensive exploitation of this northern tract.

Summarizing the settlement opportunities in this whole district, it can be said that the most attractive are those in Coldwell, Fairford and Bifrost. While Dr. Fawcett has shown in his survey of 40 townships that there are 92 quarter-sections that might prove attractive to settlers, it is to be remembered that many of these are isolated quarter-sections and the social and economic necessities of successful settlement are, after all, absent and would be very expensive to maintain.



## District Number Ten

### *West of Lake Manitoba*

This district, comprising the municipalities of Westbourne, Glenella, Lakeview, Lawrence, Ste. Rose, McCreary, Rosedale, Langford, Lansdowne and the unorganized territory lying west of Lake Manitoba has an area of 2,453,277 acres, of which 1,001,313 acres or 41 per cent. is reported unused. Of this unused land the Dominion Government owns 471,851 acres or 47.13 per cent., The Soldier Settlement Board holds 49,080 acres or 4.9 per cent, the Provincial Government, 77,680 acres or 7.76 per cent., and the municipalities have title to 41,280 acres or 41.3 per cent. Of the balance, which is privately owned, more than half is held by residents of the Province of Manitoba and about 76,900 acres is owned by residents in foreign countries, chiefly the United States.

#### *Population*

The total population of the district in 1921 was 26,192, of whom 58 per cent. were of British origin, 19 per cent. were Slavic, chiefly in Glenella, McCreary and Lawrence. French predominate around Ste. Rose du Lac and Scandinavians are found all along the lake shore. Glenella and the northern portion of Westbourne have a considerable German settlement. In the last five years the population of Lakeview, Glenella, Ste. Rose, Lawrence and the unorganized territory has decreased considerably due to the abandonment of homesteads and Soldier Settlement grants in this area.

#### *Present Utilization of Land*

The total acreage in occupied farms is 1,221,837, of which, however, only in the neighborhood of 391,840 acres is improved land. The total number of resident farmers in 1921 was 4,819, of whom 199 had holdings of less than 100 acres; 2,772 had from 100 to 200 acres; 126 had 200 to 300 acres, and 1,722 held over 300 acres, which gives an average holding of 254 acres for the whole district. In Lawrence and the unorganized territory, which was settled in recent years, 81 per cent. of the farmers held less than 200 acres, the bulk of this being homesteads. Westbourne and Langford, the oldest of the municipalities, had the largest farms, with 51 per cent. and 76 per cent, respectively, of their holdings over 300 acres. The bulk of the occupied land is farmed by resident owners, who make up 88 per cent. of the occupiers, while only six per cent. are landless tenants. Fourteen per cent. of the land, however, is farmed by the renters.

Of the improved land 92 per cent. was sown to cereals in 1921 and only 7 per cent. to forage crops. Wheat was 52 per cent. of the field crops, and oats 31 per cent. In the intervening years, however, there has been a notable decrease in the acreage of the land in crop, wheat decreasing 55 per cent. and oats 18 per cent. Barley had increased by 175 per cent., and flax and rye have also shown an increase, but the total acreage of these last two is still inconsiderable.

Prior to the war period the district surrounding the Big Grass Marsh was a great cattle country, and several large ranches were to be found. Settlers in the neighborhood also allowed their stock to roam during the summer, and many hundred head of grass-fed cattle were shipped annually. A few of these ranches remain today like the one shown in the accompanying photograph.

The drainage of the Marsh and the Greater Production Campaign, however, broke up most of the ranches, and small farms of quarter and half-sections became the mode from 1916-1921 and 1922. For a few years on the small clearings some fine crops of wheat were raised, but with the fall in the price of cereals, followed by a succession of alternate floods and droughts, there occurred an epidemic of abandonment during the years 1922 to 1925. The present unused land in the municipality of Ste. Rose that had previously been farmed amounts to 20 per cent. of



*Ownership of "Unused Land"*

Table No. 8

Name of Municipality	Dominion Govt.	Soldier Sett. Board	Hudson's Bay Company	Municipality	Provincial Govt.	Private Owners			TOTAL
						Local	Mani- toban	Canadian	Foreign
Ste. Rose	18,662	5,500	4,160		1,760	38,959	28,385	8,480	6,620
McCreary	11,980		5,120		640	320	10,160	320	7,040
Rosedale	37,760	160		320	3,360	1,040	640		
Langford	6,160	160	480	160	160		480		160
Lansdowne		1,920	640		1,120	800	8,480	3,520	5,440
Westburne	5,120	4,600	2,000		480	1,920	12,640	2,560	16,320
Lakeview	19,520	16,480	7,520	12,320	44,000	2,880	26,160	8,800	23,840
Glenella	13,680	3,200	4,480	2,880	12,240	160	17,240	2,000	17,480
Lawrence	165,875	15,930	16,640	25,600	14,560		35,018		
Unorganized Area	205,074		31,520						
TOTAL UNUSED	483,531 47.70%	49,080 1.84%	72,560 7.16%	41,280 4.07%	78,320 7.73%	43,079 4.55%	140,203 13.83%	25,680 2.53%	76,900 7.59%
									1,013,633



the improved acreage in the boom years, while in Lakeview it is about 32 per cent. Some townships in the area report about 80 per cent. abandonment. In view of this pathological condition in this area it was deemed wise to make a very thorough investigation from several angles, and the following reports have been submitted by investigators:

## *Land Adjacent to the West Shore of Lake Manitoba*

*Report of Prof. J. H. Ellis*

### *Area:*

The area dealt with in this report may be considered as a strip of land from 2 to 3 townships wide, extending from a line 4 miles south of the Whitemud River in the south, to Lonely Lake in the north. This area contains about 1,000 sections of land.

### *Method:*

As time would only permit of a preliminary inspection, no attempt was made to map out the different soil types found, but the soil was examined at intervals along lines of traverse, and the following general description based on the observation made. Some time was spent between the Big Grass Marsh and Lake Manitoba in examining the physical features and the soil types. This inspection showed that the observed features ran approximately parallel to the lake, and the inspection of the area was, therefore, completed by running a traverse from Langruth to Lonely Lake, with side traverse trips to observe the detail. The information obtained in reference to the soil of this area is based, therefore, on a north and south traverse through the area, with cross traverses through the south of the area and at Westbourne, Lakeland, Langruth, Amaranth, Alonsa and Shergrove. As similar detail was observed in these cross traverses, it may be concluded that the observations gave a general picture of the whole area.

### *Physical Features:*

When traversed from east to west, the country appears as a series of ridges and depressions running roughly parallel to Lake Manitoba. From Lake Manitoba, which has an altitude of 814 feet, the land rises to the height of land, which is from 1 to 2 miles west of the Langruth ridge in the Lakeview municipality, and approximately 100 feet above the lake. The topography from the lake to the height of land varies from the present beach through level, gently rising plain, to the "little" ridge, followed by a rise of about 30 feet to the Langruth ridge. West of the Langruth ridge a series of low, sharp ridges and swales are met with to the height of land, with a recurring series of narrow ridges or undulations westward to the Grass Marsh. These undulations may be gentle or sharp, but the characteristic low ridges and swales are the main features of the topography.

Beyond the Big Grass Marsh the land rises to the Riding Mountains. As these undulations run parallel to the lake they profoundly influence the country drainage, and it is a most significant fact that there is not a single stream to provide drainage flowing into Lake Manitoba from the mouth of the Whitemud in the extreme southwest corner, up to Ebb and Flow Lake, with the exception of one or two rivulets which are relatively insignificant. The absence of mature relief through the ridged topography has resulted in the ponding of the drainage water from the Riding Mountains, and not only has it been responsible for the formation of the peat and swamp areas west of the height of land, but it has also resulted in an accumulation of soluble salts, and the soils of the area are characterized by the presence of more or less alkali. Through the northern part of the area, the sharp undulations give place to low, stony ridges which are interspersed with more or less peaty meadows, lowland swales and stony,



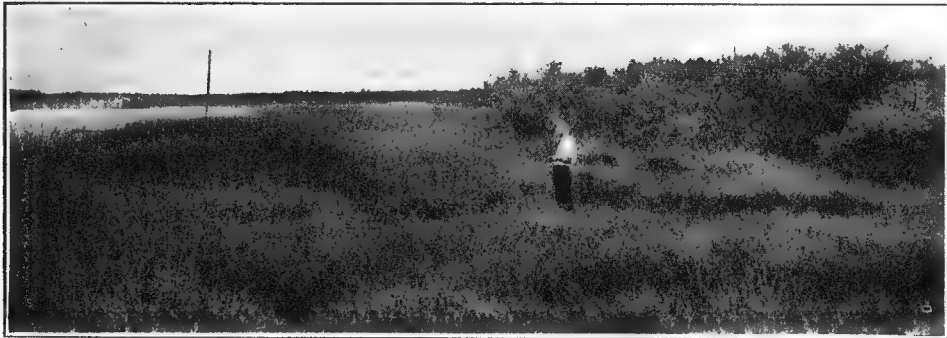
gravelly plains. Not only does the district west of this area contain considerable peat and swampy land, but this condition continues southward across the Whitemud, and the lower portion between Woodside and the Westbourne settlement south of the river contains considerable peat, some on the western side, which has been burnt off.

### *Vegetation*

The vegetation may be summarized as grading from north east to south and west through:—

1. Woodland.
2. Brule and swale.
3. Mixed park and swale.
4. Prairie and swale.
5. Peat.

The woodland growth is largely aspen and balm of gilead, with elm and ash growing in the moist places, and scattered oak. A thicket of underbrush is present, and only a small amount of forest or leaf mat. The brule is largely young aspen and other poplars, with willow on the wet places. The park growth is also almost entirely aspen and willow islands starting up in the prairie. The vegetation in the prairie is variable because of the amount of gravel and stones that are more prevalent



Typical landscape west of Langruth Ridge. Note cover and slough

in the ridges. On the ridges the grass is sparse and only the more characteristic dry land grasses are found mixed with yarrow, etc., and these grade through from the tall prairie grasses on the better soil, to the swale grasses which are found in the depressions. The peaty areas are covered with swale hay, mixed with cat-tails, rushes and mint, and these are scattered throughout the whole area and, in places adjacent to the lake where the shore is low, a number of the peaty swales are growing a considerable amount of willow, mixed with the grasses, which interfere with the use of the growth for hay, although much wild hay is available throughout the area. Adjacent to the swales on the uplands and generally associated with the prairie, alkali patches are frequent. The vegetation here grades from a sparse growth of salicornia on the strongly incrustated soil through sparse growths of maple leaf, goosefoot, artemesia, skunk grass, sow thistle, knot grass and narrow leaved dock, to the grasses beyond on the less salt-saturated soil. These patches are usually small and generally found between the swales and the upland in the prairie and park areas. They are not found in the two woodland portions, except where the land is cleared.

On the gravel beaches which traverse the country from south to north, both grass and scrub are found. In the southern portion the plants found are chiefly sparse grass, devil's needles, sage, meadow rue, golden rod, bluebells, sunflowers, gillardia, snake root, yarrow and small amounts of silver willow, rosebushes and



wild honeysuckle. In the wooded area the beaches are covered with aspen, balm of gilead and oak, with an undergrowth of saskatoons in strong contrast to the adjacent woods, which, instead of saskatoons, support an undergrowth of willow and associated scrub.

Throughout the whole area at the present time the most conspicuous growth is aspen, willow and swale grasses. These are found everywhere, the aspen predominating on the upland and the willow and swale grass dominating the depressions.

#### *Soil Types*

In general the soils of this area may be divided into several series, but all of them have the characteristic zone of lime accumulation immediately below the surface soil. The names here used to define the types of soil having the same general profile have been given tentatively.

#### *Westbourne Series*

The soils classed as the Westbourne series are characterized by a black to greyish-black nodular clay surface soils, underlaid by a marly concentration zone which rests on a mottled blue-grey and olive-drab clay. This is a drift soil, and fairly free from stone, although a few stones and occasionally a small amount of gravel may be mixed throughout the profile. A fairly typical profile shows the following:

- 0"—8"—Black granular clay, birdshot structure, the granules having glossy or shiny faces, sticky when wet, and breaking into pillared clods when dry, compact and alkaline. Islands or patches are found in this series, in which the surface soil is thin and the black soil may be only 4" in depth. Silty clay and loam types are also found.
- 9"—18"—Dark greyish-olive-drab to yellowish-grey-brown clay to silty clay, marly in the upper portion. This marly layer gives a whitish-grey color to the soil when dry. This is not alkali, but lime carbonate. When wet this horizon has a finely granular birdshot structure, and it is pillared, lumpy, and cloddy when wet, except for the grey marly upper portion, which breaks into small granules. It is plastic when wet.
- 18"—Mottled blue-grey and olive-drab or khaki color clay, lighter in color than above. The clay gets more mottled with depth, being colored with pinkish blotches where felspathic stones or pebbles have decomposed and with greyish streaks of gypsum and lime carbonate. Gypsum crystals are plentiful on most places in the lower portion. In the lower portions the clay granules increase to the size of corn grains, with angular corners and smooth faces. When dry the material bleaches to a khaki or brownish drab color. This soil effervesces throughout with acid, and is therefore alkaline.

#### *Topography*

Level to slightly undulating. In some places flat and low-lying. Generally level south of the Whitemud and undulating when found north of the river.

Stone: Few pebbles and some stone throughout, but relatively few in number in the southern portion. It has more stone where found north of the river.

Drainage: Naturally poor, except near the Whitemud River. Back from the river, on account of the flat topography, thorough drainage is required before this land can be cropped. A large ditch is being constructed during the present season on the eastern side of this series.

Geology: Drift or modified till plain.

Water: Water is difficult to obtain from wells. The wells examined in this soil gave water strongly charged with alkali.





Hall Ranch, Lakeland.

**Native Vegetation:** The vegetation is generally meadow or swale, with mixed prairie grasses over most of the area. Islands of aspen and willow are numerous. In the northern portion near the Whitemud River and to the southwest, the meadow phase grades into peat.

#### *Area*

This series is generally found in the south of the area, and the parent clay underlies most of the soil of the area. Outcrops of these clay drifts were found along the east side of the area, and also at McCreary, which have weathered into the same soil. The other soil series appear to be lacustrine, beach and ice deposits on the surface of this drift, and the same material is found as a lower horizon in some of the other series. The main area of

this series is found west of the Portage Plains to a little west of Woodside, and from about four miles south, to a few miles north of the Whitemud River. In the eastern side the Westbourne series extends further north in a narrow strip which runs east of Lakeland to the marshy land that fringes the lake at this point.

#### *Agricultural Possibilities*

The soils of this series can be used to grow farm crops under favorable conditions. Near the Whitemud River, where the drainage is good, some cultivated land is found which is growing fair crops. The better drainage where this cultivated land is found is responsible for its being used. The difficulties which would have to be faced in bringing the unused land of this series into use as farm land are:—

1. Drainage.
2. Alkali.
3. Water.

#### *Drainage*

These soils are naturally poorly drained, and because of poor drainage alkali concentration is found. A drain is being put in from Westbourne south and westward to pick up the water which in the past has been running from the higher land over this plain and has been responsible for the peaty condition found in the district south of the Whitemud. Systematic drains into this ditch to keep off the surface water will help to reclaim much of this land.

#### *Alkali*

The soil is strongly charged with soluble salts. Much of the so-called "alkali" in this area is not toxic salts, but a grey coloring of the soil due to the large amount of lime carbonate. Alkali spots or patches containing magnesium sulphate are found, and the soil contains a large amount of crystals of calcium sulphate, but no evidence of the injurious sodium carbonate, or of the chlorides were seen. The patches or spots which showed the inhibition of plant growth are small. If the land were well and systematically drained and alkali tolerant crops were grown, with careful farming the soil could be made productive. On account of the present concentration of soluble salts, however, the crops would not stand drought and would begin to wilt when crops on land with less alkali and the same moisture were showing no injury. The use of sweet clover and barnyard manure together with drainage would assist very materially in the management of the land.



### Water

An important factor in any settlement on this soil is the fact that water from wells is somewhat difficult to obtain, and is strongly charged with alkali. Good water for domestic use is a problem and sufficient water for stock would perhaps better be provided by dug-outs and large reservoirs. The question of deep-drilled wells should be investigated. Flowing wells of excellent water are obtained north of this on the west side of the lake in wells drilled to the under-lying limestone around and north of Amaranth.

*Note.*—While the soil of the Westbourne series is of itself a soil capable of producing good crops it is evident that considerable farm experience, and a will to work are necessary qualifications for any settler.

### Lakeland Series

Lakeland is the name used to describe the soil found north of the Westbourne series, and lying between the Little Ridge and Lake Manitoba. This series is a deposit of very fine sand to silt, practically stone free. A characteristic profile shows:



Abandoned farm south of Whitemud

- 0"—10"—Very fine sandy loam to silt loam, chocolate colored to dark greyish-brown, compact and structureless.
- 10"—18"—Grey-brown, very fine sand to silt, silty or floury structure, friable and fairly compact.
- 19"—24"—Greyish-yellow-brown, fine to very fine sand, single grained and structureless, compact, and with weak iron stains.
- 24"—36"—Yellow-brown or buff colored, very fine sand.
- 36"—Grey, fine sand, with lenses of clay, wet and plentifully streaked with iron.

The soil is alkaline and effervesces throughout with hydrochloric acid.

### Topography

Level, with an eastern slope from the Little Ridge to the marshy land adjacent to the lake.

Stone: Practically none. Although an occasional one may be found near the boundaries.

Drainage: Good.

Geology: Lacustrine.

Vegetation: Mostly farmed, native vegetation, woods, brule with mixed grass, herbs and pea vine.

### Area

The main area occupies a position between the Little Ridge and Lake Manitoba from Lakeland to Langruth. It is approximately in a block about 3 miles wide and 9 to 12 miles long. It is sharply bounded in the west by the Little Ridge, but grades into a transition type in the west, south and north.

Agricultural Uses: This land is being farmed and presents no problem from the unused land point of view. It supports a permanent settlement.



*Langbourne Series*

Between the Westbourne and the Lakeland soils a transition type was found which was tentatively called Langbourne. It is characterised by the same lower layer as the Westbourne, but with a surface color and texture more like the Lakeland. The following is a descriptive profile:

- 0"—3"—Sod mat and sandy loam.
- 4"—7"—Silty, clay loam, very dark brown to black, finely granular when moist, and breaking into small clods when dry.
- 8"—12"—Marly silty clay loam, greyish black, finely granular, but indurated when dry.
- 12"—20"—Silty clay, yellowish-grey above stained from upper layer fading to a greyish-yellow brown below. Fine birdshot structure, slightly specked with iron, friable when moist, but becoming indurated when dry.
- 20"—24"—Mottled blue-grey and drab clay, granular, granules the size of wheat, compact, contains pinkish patches, or spots where stones have decomposed. Gravel and stones somewhat water worn with lime incrustations found throughout. Alkaline reaction throughout.

*Topography*

Undulating swells, with swales interspersed.

Stone: Rather plentiful, from 1" to 3" found on the surface and incrustated with lime carbonate where imbedded in the soil.

Geology: Modified till plain.

Native Vegetation: Woods.

*Area*

This soil was first observed between the Lakeland series and Lake Manitoba. In the area covered by this report this series was found occupying a position adjacent to the Lakeland, and except for the swales generally better drained than the level Westbourne of the south. On further study it may prove to be a better drained phase than the Westbourne. The area of this series was small.

*Amaranth Series*

The Amaranth soils are characterised by a thin surface soil, a gravelly open sub-soil, with more or less stone and pebbles resting on a light khaki-colored, very fine, sandy clay. From a number of profiles the following is fairly typical:

- 0"—4"—6"—Dark brown to black sandy loam. (Fine, sandy loam and loam are also found.)
- 6"—9"—Gravel and pebbles mixed with marly fine sand and silt.
- 9"—12"—A concentration layer of greyish-yellow silt (or very fine sand) with considerable body, grading into:
- 12"—Yellow, buff or light khaki, very fine, sandy clay to clayey, fine sand, compact and with an admixture of gravel and pebbles of all sizes. Indurated when dry, and with consistency of putty when wet. This parent material often contains thin lenses of fine sand, giving a light mottled or horizontally streaked appearance to the horizon.

*Topography*

Gently undulating.

Stones: Stones plentiful, but variable. Gravel and pebbles throughout, but especially found below the surface soil, partially water worn, but not rounded.

Drainage: On account of ridges, this is not well drained naturally, but could be drained if the ditch system installed were maintained.

Geology: Lake washed drift.

Native Vegetation: Bush and scrub, balm of gilead, aspen, willow, mixed grass and herbs, etc., growth chiefly poplar forest. Some brule.



*Areas*

This series covers a considerable area along the west side of Lake Manitoba. It is found from south of Embury to Ebb and Flow Lake, and between the Langruth Ridge and Lake Manitoba.

*Agricultural Uses*

Owing to the stone and gravelly nature of the upper part of the soil profile, there are two difficulties in attempting to use this land for crops. First, the boulders and cobblestones, together with the wooded nature of the land, make clearing difficult, and they increase the cost of operation if the land is used as plow land. It should be mentioned, however, that the stones vary in degree, and throughout the series, areas with less stone which could be cleared for cultivation are intermixed with areas too stony to be arable.

Second, the small cobblestones, pebbles and beach shingles, which are generally scattered throughout the soil profile, together with the strong concentrations in the soil make this a type which will not stand a prolonged drought. The dry season of 1926 has been rather severe in this soil type, but it should also be noted that a dry season is very unusual in this part of the province. There is not much land under the plow, and many of the holdings which had been taken up of recent years have been abandoned. These failures have, no doubt, been due to the purchase of land and equipment at high prices, to the type of utilization and in some cases to individual inefficiency, as many abandoned holdings were seen on which there was no cleared land, and apparently no attempt made towards improvement. If this land, which is wooded and more or less stony and gravelly, is to be used for settlement, the logical method of utilization on the more stony land would be to brush out and clean up as much as necessary, and to sow sweet clover and grasses for pasture without plowing. Sheep could be used to keep down the underbrush, and as the grass became established, it would afford pasture for milk cows which should be made to be the chief source of income. The less stony land could be cleared and broken, and planted with roots, alfalfa, and perhaps some grain for winter feed to supplement the wild hay which could be obtained where there was meadow land adjacent.

Relatively large holdings would be necessary, and as it would take a settler some time to become established and to get land into shape to support a dairy herd he would either require to be financed or to go out to work for a portion of the year. Once the land was in shape so that woodland pasture was provided, hay available, and a small acreage cleared, a living would be made by a thrifty family from milk cows as the major source of farm income, with enough hogs to use the skim milk, a few sheep to assist in clearing up the scrub, and with some attention to poultry and bees.

As an alternative land utilization on the more thickly wooded portion, forestry should be considered.

*Isafold Series*

The Isafold is a series of more or less open prairie between the Big Grass Marsh and the Woodland and swale which covers the height of land. The Isafold soil is characterized by thin, black surface soil over a grey marly carbonate concentration zone, underlain by a yellowish-khaki very fine sandy clay. Patches of alkali are frequent. The profiles taken in this portion show a wide variation in thickness of surface soil. In places this soil is very much like the Amaranth, but is much more variable and of heavier surface texture. Further study may show that from a geological standpoint these two series have much in common. The Amaranth soils, however, found east of the Amaranth Ridge are modified by the waters of Lake Manitoba when it was at a higher level.

The Isafold is found between the height of land, and the Big Grass Marsh, and on account of its sharply undulating topography or ridged condition there has



been some washing of surface soil from the height of the ridges to the lower portions. The soil on the top of these undulations is generally very thin, so that the gravelly yellowish-khaki material comes very close to the surface and these gravelly ridges are characteristic of the Isafold series. The gravelly strips, with thin surface soil, can be located by observation of the native vegetation. The gravelly portions will have but a relatively sparse growth of dryland grasses and prairie herbs, while the adjacent soil will be supporting mixed tall moist prairie grasses. The depth of the yellowish-khaki, fine sandy clay is also variable, in places the mottled blue-grey and olive-drab clay of the Westbourne drift is found underlying the khaki sandy clay in the second or third foot.

#### *Topography*

Undulating to sharply undulating ridges, with characteristic alternate ridges and swales. The undulations run roughly parallel with the beaches of the lake.

Stone: There are few of the larger size, but broken stone and gravel are plentiful.

Drainage: The depressions are long swales, and as these run parallel with the contours, the ridges result in the depression being poorly drained in wet seasons.

Vegetation: The native vegetation is prairie, but the aspen poplar and willow is invading the prairie from the north and west, hence next to the Big Grass Marsh the vegetation is prairie, which grades into park towards the height of land in the east. Alkali vegetation is found in patches.

Water: Settlers report serious difficulty in obtaining good well water.

Geology: Lake washed drift.

Alkali: The soil and sub-soil is strongly charged with lime carbonate and white alkali salts.

#### *Area*

The Isafold series extends from the Big Grass Marsh eastward to the height of land, and northward from the southern portion to township 15, range 10. It is intermixed with two other soils tentatively called Amana and Woodrow. The Amana has a gravel and sand layer below the surface soil, and the Woodrow is a low-lying swale phase.

#### *Agricultural Uses*

The only use that is being made of this land is grazing. The grass is nutritious, and the cattle seen on range were in good flesh. Some fields have been broken up, but they have been allowed to revert and the few settlers who remain depend entirely on grazing and the hay they obtain from the swales and Big Grass Marsh for feed for the live stock. There are very few settlers left in the Isafold district, and they all depend on cattle. The cattle are generally of beef type, and a few of the cows are milked.

The land could be utilized here for stock, if holdings were large or grazing leases were obtained. Grazing is the best use of the prairie land in the Isafold district, but considerable attention would have to be paid to range management and range improvement, and the supplying of supplementary winter feed.

Settlers report difficulty in obtaining good water in sufficient quantity in the wells in this district. Such water as is obtained is alkaline. During the grazing season, water can generally be obtained in the swales, unless the season is very dry, but water for the winter use of cattle and for domestic purposes is a problem. Where the district is traversed by the strip of gravel and sand (or beach ridges) running at right angles to the fall of land, fairly good water can be obtained. Water can also be obtained from the ditch in the Big Grass Marsh. The obtaining of water from deep wells should be investigated. At the present time, only partial use is being made of this area. It could be made to carry considerably more stock, and from inspection there does not appear to be any reason why brome grass, sweet clover, roots and sunflower could not be grown to provide winter feed on the less gravelly portions.



*Woodrow Series*

Woodrow was the name given to the swales or depressions that are found throughout in association with the Isafold and Amaranth series. It is characterized by a shallow peaty or muck surface over a muck or mucky sandy loam, to loam. This underlayer is black with a grey tinge. Generally underneath this organic material is found a gravelly layer or gravel and sand or sand at the bottom of which is a marly concentration zone. Underneath this is a mottled silty clay, grey and pinkish drab blotched, mixed in a background of blue-grey and olive-drab. The profiles of these swales, however, are very variable, and much detailed work would have to be done in order to separate out the varying types.

*Topography*

Flat or low-lying depressions between the adjacent ridged land. They are generally long and narrow in outline.

Stone: Stones are generally found throughout the profile, but only occasionally do they appear above the surface. Sometimes a few large stones are seen on the surface but as a general rule they are embedded in the organic matter which characterises the surface. Where the shallow peat or muck has been burnt off, the stony nature is seen.



Abandoned farm near Shergrove

Vegetation: Swale or meadow hay, with islands of willow.

Drainage: On account of the fact that these swales are invariably lying between long, narrow ridges, which cross the natural fall of the land, drainage is difficult. It is an open question, however, whether it is wise to attempt drainage of a large part of this area. The ponded water in the swales not only provides water for stock in range for a large part of most seasons, but it is also responsible for the growth of a large amount of hay and grass. Owing to the gravelly nature of this and adjacent land much of it would be liable to severe drought injury if completely drained. It depends entirely as to what use is to be made of any of this area, whether drainage could be recommended. Where the land is only to be used for grazing it should be left as it is. Some land could be reclaimed by drainage, but this would require more detailed study than the time of our inspection would permit before any recommendation could be made. North of Amaranth ditches have been installed along the road allowances, which run east and west practically every two miles, but these would have to be kept workable, and considerable lateral drainage would have to be done on the farms adjacent before the land between the ditches could be drained.

*Amana Series*

The Amana soils are found as streaks or long narrow islands in association with the Isafold and other series. Though they are lacustrine they are not typical



beaches and do not occupy a ridged position. They are characterised by a shallow surface soil of heavy texture over a mixture of lime crusted pebbles and broken stones from egg size downwards, embedded in coarse sand. The stones are somewhat waterworn but not rounded. Under the gravel and broken stone is a marly layer of about 6 inches in depth which rests on the mottled blue-grey and olive-drab clay which forms the parent material of the Westbourne series. A characteristic profile found in S.W. 11-15-10 shows the following:

- 0"—3" —Sod mat.
- 3"—8" —Black to very dark brown granular clay loam, cloddy when dry.
- 9"—12"—24"—Lime crusted pebbles and broken stone somewhat water worn from egg-size downward embedded in coarse sand. This layer is very variable in thickness and the sand becomes loamy where the gravel layer is thin. This is underlain by a layer 6" thick of marl and silty clay.
- 15"—31" —Silty clay till, mottled grey and olive-drab, granular bird-shot structure, compact and plastic, with slight iron stains. Reaction alkaline throughout, and a lime incrustation shows in road cuts below 7".

#### *Topography*

Level to undulating.

Stone: Boulders of granite.

Drainage: Poor surface drainage. Vegetation indicated wet condition in spring.

Vegetation: Clumps of aspen, scattered oak, willow grass and herbs, devil's needles, anemones, tiger lilies, etc., where there is less gravel alkali patches are seen on which the vegetation grades from bare patches, through skunk grass, protentilla, knot grass, and gum weed, to willow swale hay and aspen. This series though found scattered throughout does not extend over a large acreage on any farm.

#### *Alonsa Series*

The Alonsa series is found in the northern portion of the area west of the ridge and north of the Isafold series. It is characterised by a thin light-textured surface, underlain by a marly zone over a yellowish-brown to reddish brown fine sandy clay and sand. It is a very stony series. It is found as low to sharp stony moranic ridges interspersed with broad peaty swales. A characteristic profile taken on section 13, township 21, range 11, shows the following:

- 0"—4" —Black to grayish-black sandy loam, structureless.
- 5"—9" —Brownish-grey loam to sandy loam, very gravelly and stony.
- 10"—18"—Whitish-grey clay, buckshot granules, grading into a khaki, very fine sandy clay at 18 to 20 inches.
- 20" —Yellow-brown and reddish-brown, fine, sandy clay and sand mixed.

#### *Topography*

Low ridges and till plain with level stretches of peat and meadow land between.

Stone: Very numerous, also much gravel.

Vegetation: Willow and grass where profile was taken, but generally found to be brule with vigorous growth of young aspen and balm of gilead with underbrush of willow.

Drainage: Good on ridges and upland, but adjacent land is meadow and swales.

#### *Agricultural Uses*

Much of this land was taken up recently and has been abandoned. Portions of the land which are not so stony could be used for stock, especially in association with the adjacent peat and hay meadows.



*Peat*

Peat is found in varying amounts from the south to the northern portions of the area inspected, but especially in the western portion. In the south of the area, in township 13 and 14, range 10, west, and south of the Whitemud River is a grass peat bog. This covers several sections of land. In the northwestern portion south of Woodside the peat has been burnt over and this portion is being settled. Where the peat is still untouched by fire it is noticed to be a moderately decomposed, felty peat. There is little settlement on this peat, but if it were drained and the drainage controlled it could be utilized for the production of hay. The largest peat area is the Big Grass Marsh in township 15-18, range 10-11, west. This bog was investigated by the Department of Mines for fuel purposes, and is reported in Department of Mines Bulletin, No. 8, page 31. The estimated area of this bog is 50,000 acres, varying in depth from 1 to 4 feet. Where examined, the surface material was found to be a felty grass peat. A ditch was dug in a north and south direction through the length of this bog. The ditch had an outlet into the Whitemud River, which was dredged as far as Woodside. After the drain was completed a fire started on the west side of the ditch in township 15, range 11, and burned over several sections. The ashes from this burnt-over peat were later blown into the ditch at a location between section 25 and 26, township 15, range 11, and the ditch was blocked. The water broke through above this dam at the bridge on the townline between township 15-16, and the drainage waters flooded the lowered surface of the burnt-over sections.

During the inspection of this area samples were taken on the burnt-over area, and samples of the burnt portion adjacent were taken for comparison to ascertain if the alkali concentration of the burnt-over land was such as to inhibit growth. It was observed that growth of weeds and grass had started on the burnt-over land, but that they were covered with an inch or two of silt, and broken shells, etc., in layers. The appearance of the mud flats in the field indicated that it might be the periodic flooding and covering with mud and silt washed down from the ditch rather than inhibition by alkali salts that prevented the native growth of swale grass, reed grass, etc., from becoming established. Dr. Munro, of the Chemistry Department of the M.A.C., made alkali determinations of these samples and his report is appended. As long as the ditch remains blocked the only use that can be made of the marsh is hay and pasture. The marsh at the present time is growing hundreds of tons of swale hay and, owing to the partially drained condition, much of it is unused. There is also only a very limited settlement adjacent to the marsh on the east side and the few settlers left usually get sufficient hay on the outskirts of the bog and the adjacent swales.

Farther north above the Big Grass Marsh the swales between the ridges and undulations (mentioned in paragraph on physical features) broaden out and in the Agardsley, Maygrove and Alonsa districts more or less peat is found existing as broad, peaty grass meadows between the stony wooded land adjacent. These generally produce a large amount of wild hay. While there is, therefore, a large amount of peat and peaty soil in the western portion of the area, its use at the present time is limited to the production of wild hay. Eventually some of this peat may be drained and, with ditch control to prevent drying out, much of it would be used to produce better quality hay and pasture.



Drain in the Big Grass Marsh, showing how it has been filled up



### Gravel Beaches

Gravel beaches of Glacial Lake Agassiz are found traversing this area. The most conspicuous is the Langruth Ridge. This ridge forms a natural highway into the country northward, and it has been used as such since before the days of settlement. At Langruth, which is built right on the ridge, the Department of Interior maps give the altitude as 881 feet at the C.N.R. rails. The crest of the ridge is slightly higher. The ridge consists of sand and gravel, and a profile taken at section 6, township 15, range 9 shows the following:

- 0"—4"—6"—Grey-brown, loamy, coarse sand mixed with gravel up to 1" in size.  
 6"—12" —Brown to greyish-yellow-brown sand and gravel, more or less straightened but impregnated with material from above. The stratification in the layer observed was:
- |                                 |  |
|---------------------------------|--|
| 7th inch—sand.                  | } This layer 7-12 inches was in a measure indurated or slightly cemented together. |
| 8th inch—fine gravel.           |  |
| 9th inch—coarse sand and gravel |  |
| 10th inch—fine gravel.          |  |
| 11th inch—medium sand.          |  |
| 12th inch—coarse gravel.        |  |
- 13"—17" —Gravel from size of pea to 2" stones and no sand, water worn gravel only.  
 18"—23" —Coarse gravel embedded in medium clean sand (gravel from 1" pebbles to wheat grains.)  
 23"—24" —A 1" layer of buckshot-size gravel.  
 25"—26" —Gravel in medium, clean sand.  
 26" —Three feet of coarse sand.

The Little Ridge, which is found just east of and below the Langruth Ridge, and which closely follows the 850 contour, was observed in section 9, township 14, range 9 to have a profile of:

- 0"—4" —Black, fine, sandy loam.  
 5"—12" —Grey-brown to brownish-grey gravel, gravel 1/2" and downwards in size, assorted and water worn.  
 13"—18" —Marly gravel stratified and indurated or cemented together, and showing lime concentration and coating on the gravel.  
 19"—24" —Greyish-brown, fine gravel, stratified.  
 25"—40" —Stratified and banded fine sand, iron specked, and stained, and showing grey-brown similar textured material in horizontal layers between the yellow-brown sand. Also thin layer of clay 1/4" thick from 1" to 4" inches apart.  
 40" —Coarse, loose sand and gravel, blotched with iron stains.

These two ridges are the best defined gravel beaches although less well defined wave washed strips were observed. (See Amana series). A significant fact about these two ridges is that they run at right angles to the drainage from the height of land west of the Langruth Ridge, and that they lie between the height of land and the lake. Because of this fact water is obtained in wells dug into the ridge at a relatively shallow depth. This is a noteworthy condition in a district where well water is somewhat of a problem.

The surface soil on the east or lake side of these ridges for a greater or less distance is usually of a lighter or more sandy nature, while the west or high land side is more or less poorly drained.

### Vegetation

Where the ridges run through prairie or are not tree covered, the native growths on the gravel ridges were sparse grass, devil's needles, wild sage, meadow rue, golden rod, blue bells, sunflowers, yarrow and snakeroot. Dogbane, wild honeysuckle and silver willow were also found. Where the ridges run through



wooded country, oak and saskatoon bushes were found in contrast to the poplar and willow forest on the land on either side of the gravel ridges.

#### *Agricultural Value*

As is readily seen from the profile described above the gravel ridges are more suited for roads use and for the location of buildings than for any agricultural purpose. The profile varies in different places, depending upon position and the slope of the shore line, etc. It should be pointed out, however, that the sandy soil frequently found immediately east of the ridges is often arable land.

#### *Summary of the Soils of the Area*

The chief characteristics of the soils as a whole area are:—

1. The shallow or thin surface soil (except the Lakeland).
2. A concentration zone of lime carbonate generally at 5" or 6" which gives a very grey color to the soil cuts.

The major series, with their distinguishing features found in the area west of Lake Manitoba are:

(a) *The Westbourne*, with mottled blue-grey and olive-drab clay parent material, containing gypsum crystals and whitish-grey and pink blotches and streaks.

(b) *The Amaranth*, with stony gravelly surface and mottled khaki parent material (a wooded type).

(c) *The Isafold*, a gravelly soil, occupying the ridge and upland position in the undulating ridge and swale country adjacent to the grass marsh. The Isafold has a light yellowish-khaki, fine, sandy parent material, superimposed at varying depths in the same material as the Westbourne (as open or park type).

(d) *The Alonsa*, with sandy to loam surface, stony, low moranic topography, and a yellowish-brown and reddish-brown sand and a fine, sand clay parent material—a stony type—more or less wooded.

(e) *The Lakeland*, which is a small area of arable land east of the Little Ridge.

(f) *Peat* found both as peat bogs and broad shallow peaty swales. (See text for description).

*The Westbourne* is generally found in the south.

*The Amaranth* is generally found west of the lake and generally north of Langruth, or in the eastern part of the area.

*The Isafold* in the eastern portion, between the Amaranth and the Big Grass Marsh, or in the west of the area.

*The Alonsa* is found mixed with the peaty meadows west of the Amaranth and generally north of the Isafold or in the northwest of the area.

*Peat* found generally in the west and south.

The *Amana* or very gravelly soil, the *Woodrow* or swale and the gravel beach ridges are found intermixed throughout.

#### *Agriculture and Settlement*

The present agricultural status of the area cannot be dealt with without linking it up with the settlement or population. Extending from the Langruth Ridge to the lake from Langruth to Lakeland is a strip of farm land about 3 miles wide and 9 to 12 miles long. This district is farmed, and is capable of supporting a high standard of living. It is the best farm land in the area. The crops grown are wheat, flax, barley and oats, with an occasional small field of sweet clover, but practically any of the standard crops in the province could be grown. Some cattle are milked and a few sheep are kept. The people in the district are largely of Icelandic extraction, and many of them supplement farming with winter fishing in Lake Manitoba. In this district there is a little vacant land, and the reason for the relative prosperity and permanence of settlement is the fact that the soil is of a different type to the rest of the area west of the lake.



In the narrow strip between the Langruth Ridge and the lake are small areas which might be used as general farm land, but north of Langruth the land is generally stony and difficult to cultivate.

Attempts have been made by individual settlers, and soldier settlers to farm land in the remainder of the area, and the results of this attempted settlement during the last 8 to 10 years present the best evidence of its unsuitability for general agricultural development. Of all the settlers that have gone into the country the only ones that have been able to stay on their holdings are those who keep cattle. These may be divided into two classes: first, those who may be called ranchers, who keep fairly large herds on the range and, second, those who attempt to farm and make their largest returns from milking cows. The first group is found largely in the south and southwest from Lakeland to the Big Grass Marsh. The meadows, swales, prairie and park land in this area make excellent grazing, and hay for winter feed can generally be secured. In this area good water from wells is difficult to obtain, although surface and pond water can be obtained on the range in most seasons. Near the Grass Marsh the Big Ditch is the source of water for the herds that are kept. If a good supply of water could be obtained, the method of utilization of land is undoubtedly the best that could be used. At the present time the area is a long way from being overstocked. Examples which may be given of this method of land utilization are the Hall Ranch, south of Lakeland. This ranch consists of some 2,000 acres. About 300 to 500 head of cattle are kept and the cattle are usually marketed in September. The cattle are out on the range for the year round, but are fed hay in the winter. Some oats and barley are also grown. In the district east of the Big Grass Marsh a settler in a less pretentious way is making a fair living. About 100 head of cattle are kept and 12 cows milked during the summer. A few sheep are also kept.

A few neighbors follow similar methods, but as the land adjoining these settlers in the Isafold district is all out of cultivation, their cattle have free range.

North of the Isafold area through the Amaranth district the settlers were largely soldier and individual settlers with smaller holdings. A settler in this neighborhood gave the information that within an area of 4 miles square in the school districts of Brydale and Lone Spruce, 26 men have abandoned their farms within the last year or two, and he himself is leaving this fall.

The district is the wooded ridge and swale country west of the ridge in townships 17 and 18. Here and for some miles northward, there has been a general exodus and the reason is that the soil is gravelly and stony, low ridge and swale phase, on which farming should not have been attempted. In this area, water is difficult to get, the depressions are wet in wet seasons, and the gravelly surface will not stand dry weather. One settler stated that for five years his crop had been drowned out, and this year it was dried out. This illustrates the result that one could expect in attempting to farm this portion of the area. The native vegetation tells the same story if the settlers could only have interpreted it. North of Amaranth in the Alonsa district the settlers have been going out of the country also. Here the soil is much more stony than in the south, but generally a little better, but as far as the individual settlers are concerned all tell the same hard luck story.

In the Shergrove district a settlement of people of Belgian extraction are making a living from their cream cheques. Mr. Julian Cottyn, N.W. 4-23-13, stated that in 1920-21 there were 28 families in school district No. 1784, and all had left but eight. These were Belgians, who all kept cows. Feed is grown, and some wheat, but the chief source of income is from cream, shipped to Ste. Rose du Lac. This land is on the western edge of the area inspected, and though the soil is somewhat stony, it was of the Woodlands phase before being broken up, and better than the gravelly soils to the east and south.



The Dominion Live Stock Branch have placed a registered Hereford bull in the Shergrove district, and there are 86 head of cattle in registry. This is the type of cattle that these men are milking, hence summer dairying is practised. Mr. Cottyn is milking 14 cows and sells \$4.00 worth of cream per day during the summer.

North of the Shergrove district there is a scattered settlement around and north of Lonely Lake. These people run cattle on range and milk a few cows. In this district a community effort is followed in marketing the cream. They are from 20 to 30 miles from Ste. Rose. The cream is delivered at a central point in the district, and each shipper takes turns in taking all the cream to Ste. Rose Creamery. The man whose turn it is to take the cream, also brings back supplies from the store, and the balance of the cream cheque. Practically no farming is done in this district, it is the cattle, and especially the cows, that enable the settler to hang on. North of this district the settlers ship their cream by lake.

#### *Conclusion*

1. The area that could be classed as good arable land is relatively small. The best land being the Lakeland series south of Langruth and between the Little Ridge and Lake Manitoba. There is no unused land problem in this locality.

2. The remainder of the land of this district may be divided into several areas.

- (1) The meadow area south of the Whitemud.
- (2) The Isafold or prairie and swale and park and swale east of the Big Grass Marsh.
- (3) The woodland (brule and poplar woods) and swale from Langruth northwards.

I. The district south of the Whitemud is a small area of several sections, largely unused, except for hay. It has, however, three serious disadvantages that settlers would have to overcome, viz:

- (a) On account of the flat topography better drainage would have to be provided.
- (b) The soil is strongly charged with alkali and would require careful farming.
- (c) Well water is difficult to obtain and is strongly charged with alkali, hence dug-outs would have to be used unless further investigation showed that deep drilling would give satisfactory water supply.

II. The Isafold district, or prairie and swale, and park and swale, east of the Big Grass Marsh, and north of the Whitemud. This is a fairly large district, which, because of the topography, viz., recurring ridge and swale, and soil conditions, is not suited to general agriculture. It would be better utilized as ranch or combined farm and ranch land in large holdings or leases. The Moffat farm and ranch, on the height of land on section 1, township 15, range 10, is an example of what might be done in the matter of combined ranch and farm on the more level portions. Brome and sweet clover, with some grain, are grown and cattle and horses are run on the range. Winter feeding of cattle is also followed. On the more ridged prairie and park adjacent to the Grass Marsh two methods of management might be followed.

(a) Letting the land in large leases for a long time for a ranch; the prairie giving summer pasture, and the marsh supplying the winter hay.

(b) Summer range of cattle owned by farmers in grain growing districts adjacent (such as the Portage Plains) which could be herded during the summer and taken to the farms and finished in the winter.

III. The woodland (brule and poplar woods) and swale from Langruth northward. This portion of the area is something of a problem. As the larger portion of it is poplar woods, with swales, there is only limited amount of native pasture. Some hay is provided on the peaty meadows that are found as swales between the woods, but because of the general wooded nature of the country native hay, except



near the marshes in the west, is comparatively scarce over some parts of the area. Therefore, pasture and hay would have to be provided in addition to the other feed crops which might be grown if settlers were to take holdings and try to keep stock. Moreover, the amount of stone and gravel present in the soil together with the ridged topography is generally a serious handicap to cultivation. Two methods of utilization may be generally followed.

(a) On the well-drained, less stony land some clearing could be done and grasses and clovers seeded down and the best of this land could then be used for growing roots and grain. Where wild hay is available it could be supplemented with the feeds mentioned above, and dairying could be followed. If sheep were kept in addition and other woodland were brushed, the sheep could be used to help clean more land. This would be seeded to grasses and clovers without plowing and the pasture acreage increased. Land which was exceptionally free from stone and gravel could be cleaned up and farmed, and it is possible to get a small area on which farming is possible, but as a rule the larger portion of this area contains such quantities of small stones, gravel and beach shingle that extensive profitable cultivation is out of the question. Some source of income, such as day labor, for part of the year would have to be secured by the settler with little capital until such time as by part-time work he had established fields of forage to support the stock, which would then become the source of farm income.

(b) On the more stony, gravelly land the production of timber should receive consideration as a more logical method of land utilization. I would recommend that a competent forester be consulted as to possible development, and returns from supervised forestation of a portion of this area.

## *Alkalinity of Soils of the Big Grass Marsh*

*Report of Dr. L. A. Munroe*

Two representative samples of soil were taken from the Big Grass Marsh area. The first (a) was taken in the vicinity of Isafold, one and a half miles from the Big Ditch. The soil was sampled every foot to a depth of four feet. The top layer of this soil was very peaty, and was covered with a heavy growth of marsh hay.

The second sample of soil (b) was taken from the dried mud-flat, resulting from the evaporation of the inundation caused by the filling up of the ditch at the bridge on townline between townships 15 and 16.

The method for the determination of alkali is to extract the soluble salts from the soil with a definite quantity of water, and to ascertain the amount of sulphate and carbonate in a million parts of the soil. Almost all of the Agricultural Stations express the sulphates as Sodium Sulphate (white alkali), and the carbonates or bi-carbonates as the corresponding Sodium Salt or "Black Alkali," making use of these figures to ascertain the toxicity of the soluble soil salts. For this reason the results of this analysis are expressed in the same manner.

Sample	Depth	Sodium Bi-Carbonate Parts Per Million	Sodium Sulphate Parts Per Million
A 3	1st foot	2,190	....
A 4	2nd foot	506	1,587
A 5	3rd foot	292	870
A 6	4th foot	279	1,183
B 13	1st foot	306	2,068
B 14	2nd foot	314	1,503
B 15	3rd foot	314	1,089



Hilgarth states that alkali in as small concentration as 200 parts per million is harmful to legumes. Alfalfa will tolerate 300 parts per million of black alkali, or 1,390 parts per million of white alkali, according to this investigator, while others give concentrations all the way from 1,000 to 7,100 parts per million as the lower limit of toleration. The reason for the great variation is the unsatisfactory method of expressing soil alkalinity. All the sulphate and carbonate cannot be correctly expressed as the sodium salts since part of the sulphate occurs as Magnesium and Calcium. Sulphates, which are present to a greater or less extent. Calcium sulphate or Gypsum is not toxic as Sodium Sulphate. In the soils investigated, Gypsum and Magnesium Sulphate occur in considerable amounts. It is obvious, therefore, that no reliable estimate of the toxicity of the soluble constituents of the soil can be made on the basis of the above method of expressing concentration. A consideration of the amounts of Calcium and Magnesium present, and of the pH value of the soil, furnishes data which serves for a comparison of the relative fertility of two soils. A complete analysis of the above samples is given below:



Incrustation of alkali adjacent to Lake Manitoba

1	2	3	4	5	6	7
Sample	pH Value	Calcium in p.p.m.	Magnesium in p.p.m.	Sulphate S94	B-Carbonate HCO <sub>3</sub>	Total Solids
A 3	7-8	(Organic matter 4,360 p.p.m.)			1,611	11,660
A 4	7-8	343	383	1,069	372	7,500
A 5	7-4	343	240	588	215	2,055
A 6	7-4	336	219	782	....	1,690
B 13	7-5	343	219	1,400	225	2,635
B 18	7-6	200	153	1,016	231	2,800
B 26	7-7	129	346	736	231	2,730

These results show that most of the sulphate in Sample A is magnesium and calcium sulphate. Indeed, there is enough magnesium present to account for all of the sulphate. The concentration of the sodium salts is, therefore, much lower than calculated by the U.S. method. A large concentration of soluble salts occur in the peaty layer on account of evaporation of water from the peat.

In the second sample the magnesium content is lower. This means that there are more sodium salts present than in the first. This is borne out by the pH values which are an index of alkalinity, the only exception being in the concentration zone at the peaty layer.

Since the total solids are not very great in most cases, it is possible that an alkali-resisting crop, such as alfalfa or sweet clover could be grown successfully. In a dry season, however, the pH might become sufficiently high to kill the plants, although the nitrogen-fixing bacteria necessary for healthy alfalfa will stand alkalinity up to as high as pH 8.8. The only way to obtain exact information as to the action of specific soils is to carry out pot experiments with the soil in question.



## *The Big Grass Marsh District*

*Report of Dean W. C. McKillican*

### *Area Covered*

The area covered by this report is a strip lying west of Lake Manitoba, about two to three townships wide, and from township 13 to township 24 inclusive, in length.

### *Used Land in Area*

There is within this area a considerable amount of farmed land, but the larger portion is vacant. The farmed land is largely in favored localities. Around Gladstone there is an excellent farming area, long settled. Along the Whitemud River at Westbourne there is a smaller settlement. From Lakeland and Langruth to the shore of the lake, is a well settled and successfully farmed area. Throughout the rest of the area the settlement is irregular, individual farms or small groups being interspersed with much unused land. Most of the unused land has never been cultivated, but there is also a considerable area of abandoned farms.

### *General*

To assume that land is idle for no particular reason, and to suppose, as is often done, that it only needs to have people put on it, is a very great mistake. Practically all the land in the accessible parts of Manitoba has been exposed to settlement for several decades, and any land that is passed over by the land-seeking public, year after year, has some serious limiting factor that is apparent to the land seeker. Any criticism I would make of the judgment of the settling public would be that it has not been discriminating enough, rather than too discriminating. It is possible that some of the disabilities which have prevented settlement may be removed by public action, or overcome by special methods. The consideration of such policies should follow the gathering of the information sought by the present investigation.

Prof. J. H. Ellis has presented a report on the soils of the area in question. I will, therefore, apply myself particularly to possibilities of making use of the various types.

The first vacant area looked at was that lying mostly south of Westbourne and Woodside stations on the C.P.R. This area is practically surrounded by good farming land, but is a solid block without anyone living on it. It would appear that the conditions which have prevented settlement of this area are lack of drainage, high alkaline content of soil and, in places, too deep a covering of peat. From a livestock standpoint it would appear from information available, that a lack of drinkable water has also been an obstacle. The soil itself is a strong fertile soil that would be productive if these disabilities were removed. The same soil on the better drained borders is good farm land. The alkalinity is due, partly at least, to lack of drainage over a long period of years. A big ditch is being dug across the east end of this area, which will make some improvement, but many laterals into it and other main outlets will be needed before any great change is brought about. The use of alkali enduring crops, such as sweet clover, will help in starting farming on this area, and in reducing the injurious influence on other crops. The part of this territory that has a peat covering greater than plow depth, should be left to grow wild grass at least for the near future.

### *East of Langruth Ridge*

The area between Lake Manitoba and the Big Grass Marsh is divided by the Langruth ridge running north and south. The main road followed the ridge, and the villages of Langruth and Amaranth are on it. The conditions are different on one side of the ridge from the other.

The east side is much more favorable to farming than the west, as the drainage has a convenient outlet in Lake Manitoba. The south end of this strip is well



settled and is no problem. Settlement is more scattered as one goes north. The chief reasons why vacant land in this strip is still unused would seem to be a bush-covering, making clearing and breaking slow and expensive; a thin top soil, with gravelly subsoil, and some stones coming to the surface; insufficient drainage in parts of the area. The successful settlers in this part have done better than those who have had to abandon their farms, because they have a sufficient area cleared to support them, and in most cases are on the better pieces of land. The soil varies greatly in quality, due chiefly to the number and closeness to the surface of stones.

In my opinion a considerable part of the unused land in this strip could be farmed. It would not stand exhaustive grain farming, such as has been followed on the deep, prairie soils, and unfortunately, that is what is being attempted. This shallow soil must be kept up by a system that will conserve fertility. Also, those who settle this area must be content at first with a simple form of life, as it will take years to clear the land off, and in the meantime production will be small. Many of the settlers now succeeding in this area are adding to their income by fishing in the winter. Newcomers should plan to have this or some similar source of winter income outside the farm, at least during the years while the land is being cleared of bush and stone. Some of the stoniest of this land might better revert to forest production.

#### *West of Langruth Ridge to Big Grass Marsh*

Conditions west of the Langruth are quite different from the east side. On the west side there is no natural outlet for drainage. It has been dammed back for ages, with the result that alkali has collected very generally. Near the ridge there is some tree growth, but westward it is mostly open with scattered scrub. The land is characterized by many low ridges of sand or gravel running parallel north and south with swales between. The chief obstacles to settlement are, therefore, lack of drainage, alkalinity; an irregular surface not lending itself to drainage or cultivation, peat in swales and shallow soil over gravel on ridges. There are better areas within the territory and some successful settlers, more especially toward the south.

I would recommend against close settlement or small farms in this section. It is grazing area, in my opinion. In large holdings, handled as beef ranches it would carry a larger population and produce more returns than it is now doing. Apparently water is available in some places at least, but fuller information on this point should be obtained. Some summer dairying might be combined with beef raising. Several settlers are now following in part the method proposed, owning a small area and allowing their cattle to roam on the unused land of others, and cutting their winter feed on the Big Grass Marsh. If arrangements could be made for leases at low rates, so that the cattle owner would have a right to land he grazed and could plan accordingly, it would stabilize the business. Then the better parts could be used to grow winter feed of a better quality than the marsh hay, and some grain for winter fattening. I would suggest also that a grazing area here would work well with an arable farm on Portage Plains, or other similar district, the cattle being pastured on this land and winter fed at the home farm.

#### *North End of Area*

The north end of the territory differs from the south in that boulders take the place of part of the gravel and sand further south, and woods are more prevalent. There are the same parallel stony ridges with a general lack of drainage and many sloughs and swales. Some of the cleaner and more stone-free quarter-sections are being farmed, but most of the land is unused, with many abandoned farms to be seen. The obstacles to settlement are the uneven topography with alternate swales and gravel; thin soil over gravel; much stone on surface; woods over part. Much of this area should not be farmed at all and settlers should be warned off, if possible. A scheme to re-forest it and produce a crop of useful wood, would, in



my opinion, be the best use to make of the stonier parts. Some of the more open tree-free areas might be used for grazing as indicated for the territory to the south. Some of the less stony, better drained parts might be farmed as already indicated for the land east of the Langruth Ridge.

#### *Big Grass Marsh*

Along the west side of the south central part of this area lies the Big Grass Marsh. So far as I was able to see, this is covered with peat, except some burned-over spots where the underlying soil seems rich, but stony and alkaline. A big ditch has been dug through, but it is filled with dirt and inoperative.

I would recommend that the Big Grass Marsh be left as it is for the present, and be allowed to grow wild hay for the use of the neighboring settlers.

### *Westbourne Municipality west of the Big Grass Marsh*

*Report of C. H. Hammar*

Behind the ridges mentioned in the report of Professor Ellis and occupying an extensive but shallow depression lies the Big Grass Marsh. This marsh attains a width in some places of 4 to 5 miles, and the main position of its basin is townships 15 and 16 of range 10 and 11 W. The area occupied by the marsh proper is about 65 square miles, but the area affected by its presence is perhaps well over 100 square miles.

From the wide area west and north to the Riding Mountains and the plains between, the water drains to the basin of the Big Grass Marsh, innumerable streamlets rise in the highland, find their way through old and deep channels to the edge of the mountains and quickly lose their identity in the maze of marshes that occupy inter-beach depressions.

The Whitemud River coming in from the southwest alone has managed to retain the identity of its course through the marsh. This river forms the sole outlet for the ponded waters of the marsh basin, and at times of high water, the waters of the marsh overflow into this river and find their way south around the end of the ridge and thence northward to the lake itself.

A large portion of the marsh, however, is either lower than the bed of the Whitemud River where it leaves the marsh or intervening land obstructs drainage, for large sheets of water are continuous in the basin throughout the year and except for the presence of artificial drainage these would be much larger.

Not only is the present basin of the marsh large, but the presence of beach sand at a number of points well above its present extent indicate that it was much larger in earlier geological times. Obvious effects incident upon its presence extend well beyond these beaches.

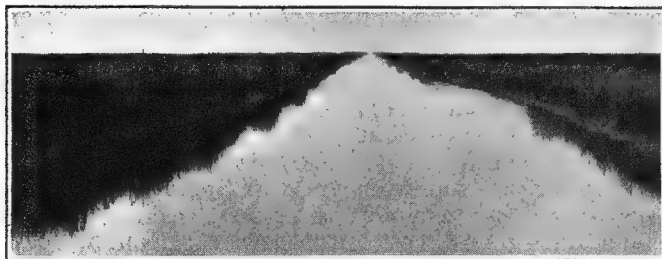
### *Soils*

The soils of the Big Grass Marsh and adjacent area to the west may be divided into four main types: (1) Peats and peaty soils or those with a shallow covering of vegetable material. (2) Lake washed or gravel and boulder covered till. (3) Unmodified or little modified glacial till and (4) The delta sands of the Assiniboine. There are a number of others, but nearly all are modifications of the above named four main types.

#### *The Peaty Soils*

Lower portions of the marsh basins, all except the very deepest parts where water remains throughout most of the year, are covered with peat. The vegetable mantle, however, is very thin, seldom attaining a depth of over 2½ feet and averaging less than a foot. It is well decomposed and supports excellent growths of rather coarse grass. Occasionally where it has been better drained there are meadows of red tops and on one field where this peat had been broken there was





Drain running north and south through Big Grass Marsh.

a fair to good growth of barley. Many weeds requiring a rather rich soil were also found on these peats.

The underlying mineral soil is usually a heavy retentive, silty clay, though in the northerly and westerly parts it is

underlaid by a very fine sand. Perhaps the majority of these peat soils could be plowed deeply enough to turn up mineral soil. However, toward the centre of the marsh the peat attains a depth of as much as  $2\frac{1}{2}$  feet. The peats are invariably alkaline as are all other soils of the area.

#### *Lake-washed Boulder Till*

To the southwest, but never to the west of the marsh, there occurs a type of soil originally a glacial till, but washed by Lake Agassiz water until its surface was covered with a layer of gravel and small boulders. In portions a wind-blown loam was spread over this gravel and boulder layer, giving a deceptively good appearance to the surface, but this layer (of wind-blown soil) is never deep enough to completely cover the larger rocks or to keep the plowshares from striking them. The gravel and cobble stone layer stands as a great defect of this type of soil aside from its great stoniness, for they insulate the surface wind-blown soil from the subsoil and break the upward movement of the water. As a consequence the top soil is very sensitive to dry weather, being quickly dried out, with its subsoil moisture practically cut off. This is a particularly serious defect in a soil which tends to be rather alkaline.

A sparse growth of herb, grass and scrub occurred on this soil type and the scattering willow and poplar bluffs showed trees that were invariably small and dwarfed for their respective species. The grass also failed to form a good, continuous sod, leaving revealed the soil between blades or stems and the growth (the dryness of the summer, 1926, must here be taken into consideration) was very short, seldom over 6 or 7 inches as an average. The growth of herbs was similarly stunted.

The main body of this soil seen by the writer, that lying to the south of the marsh, had a further defect, that of a sloughy surface or topography. Long channels alternated with long ridges, each running parallel with the other in a direction somewhat east of south. Both ridges and channels were usually very narrow, often only a few hundred yards wide, and in places gave the country the appearance of being wavy. The channels were usually swampy or marshy, and even in the dry season, 1926, were producing quantities of rather coarse hay.

On the whole, this type of soil is an unpromising one with its many defects. It was, however, yielding considerable pasture and some hay. Its stoniness will and should keep most of it out of cultivation under present economic conditions.

A typical three-foot section of the above soil is described below:

0 to 4 inches—a brownish-black sod mat fibrous with roots.

4 to 16 inches—yellow-brown silty, clay loam, granular and crumbly, showing greyish concentration of alkali salts.

16 to 36 inches—yellow and grey streaked and mottled, silty clay, so compact as to be almost a hard pan.



### *Unmodified Boulder Till*

Adjoining this last type of soil and merging into it was another glacial till soil of far better quality. This soil had the same or a heavier surface, or what is called in common language clay, but there was no gravel layer between the surface and subsoil to cut off the water supply from below. Under ordinary conditions this soil would not be droughty, though in the summer of 1926 the combination of dry weather and the alkalinity of the soil made grass and herb appear very parched. The vegetation on this soil was markedly better than that on the preceding, and willow, poplar and grass grew almost luxuriantly in places. In fact, save where marred by too much alkali this is an excellent soil, and successful farms were in operation on the edge of the heavier alkali belt.

A typical three-foot section of the above described soil is given below:

0 to 3 inches—a black or dark brown sod mat.

3 to 8 inches—a black or dark brown loam to clay, loam inclined to be lumpy when dry.

8 to 12 inches—but sometimes as much as 8 to 24 inches, gravel cobblestones and boulders, showing water working.

12 to 36 inches—a mottled, gray and khaki silty clay, granular and compact.

### *Delta Soils*

In the southern part of township 15, range 11, this last type of soil gave way to a more sandy soil, which is described technically as varying on the surface from a very fine to a fine, sandy loam. The subsoil sand was similar, but contained little or no silt or clay, varying from loamy to a pure sand. In ordinary years these soils would not be droughty, though in 1926 they were very dry. Like all other soils of the Big Grass Marsh area, they were alkaline. They supported a typically alkali country vegetation and in spots were bare. Where sufficiently distant from the marsh to escape alkali deposits, these soils were farmed successfully. The decreasing effect of the alkali was easily discernible by the increasing height of the poplar and willow brush as distance from the marsh grew greater. This soil is, in fact, identical to that of similar texture about Plumas, Ogilvie and other places to the west of the Marsh. It is an Assiniboine delta soil deposited during the existence of Lake Agassiz by the Assiniboine River.

A typical three-foot section of a delta soil shows the texture to be as follows:

0 to 2½ inches—a brownish-black sod mat.

2½ to 10 inches—loam to a very fine, sandy loam, black to brownish-black in color and slightly granular.

10 to 15 inches—texture similar to above layer, but color grey from concentration of alkali and lime.

15 to 36 inches—texture varying from very fine sand to loamy, very fine sand, greyish-brown and streaked with iron stains.

### *Soil Defects*

#### *Alkali*

The alkali of the soil of the Big Grass Marsh area is not an original inherent quality of the soil, but has been brought in by the drainage waters. During times of much rainfall or the thaws in the spring, the marsh fills with water. Subsequently evaporation takes place and the reduced quantity of water no longer able to hold the alkaline in solution, leaves them deposited as a white crust on the surface of the soil. This process goes on even at the present, though at a somewhat reduced rate, due to artificial drainage of the marsh. This slow deposit of alkali carried on for thousands of years has left a soil heavily impregnated with salts, some of them decidedly injurious to plant life and others only mildly so.

Distinct zones of alkali concentration were encountered. The concentration was excessively heavy over the main body of the marsh, and what was thought to be an almost pure deposit of marl, a very mild alkali, was discovered near the



centre of the basin. Leaving the main body of the marsh, concentration became successively lighter, but wherever lower land permitted the water of the marsh to extend in arms and bays, the alkali concentration zones were similarly extended. Such a bay projected west from the marsh through sections 5 and 6 in township 16, range 11, and well into the southeastern corner of township 16, range 12, where the effect on the vegetation and recurring bare spots presented ample evidence of alkali. The alkali is seldom serious, however, as far west as range 12, though in the northern part of the area the effect is often noticeable.

Due to their better drainage, soils adjacent to the rivers, notably the Whitemud and Big Grass, are distinctly less alkaline than those farther away and excellent farming land occurs. This belt of sweet soil, however, is usually rather narrow.

To rid the soil of alkali in this area will require excellent drainage, and long periods of time. Only when drainage is such that water no longer remains stagnant in the marsh and evaporates, will the deposition of alkali stop, and the leaching and sweetening of the soil begin. It is impossible to estimate how long a period must elapse before an appreciable effect would be realized, though Mr. McLean, Engineer of the Manitoba Public Works Department, stated where excellent drainage had been installed, a noticeable change occurred in a period as short as 10 years. A happy circumstance in this connection is that the dominant alkali of the Big Grass Marsh area seems to be lime ( $\text{Ca CO}_3$ ) which is relatively harmless.

#### *Drainage*

It is not only in connection with the alkali that drainage is needed in this area, however. The whole country is very young geologically, and the movement of surface water very slow. On the other hand, the movement of water down from the Riding Mountain on to the plain is very rapid and farmers adjacent the marsh complain bitterly of the water from the west, which sweeps over in the spring, completely flooding their fields and ruining their crops. The construction of ditches, forming an interlocking system, extending from the foot of the mountain to the Whitemud River, is necessary to prevent this flooding. Much of this construction has been done, but far more remains to be done. This is a problem of the Public Works Department of the Provincial Government and of the municipalities themselves.

#### *The Weed Problem*

Stones and poor drainage combine in this area to make the weeds a rather more than usual serious problem. The stones obstruct cultivation, and thus are an ally of the weeds. The areas in which they occur are chiefly east and north of the marsh, however. Drainage, or the lack of it, is more serious. Sheets of water flowing over the land within the area spread the weed seeds and leave the soil in a water-logged and unworkable condition. Such conditions are peculiarly favorable to sow thistle, and the fields in the area were very badly infested.

#### *Agricultural Possibilities*

With the progressive improvement in drainage, farms are steadily encroaching on the area of the Big Grass Marsh, and some of them have already reached the line of peaty soils. Farms nearest the marsh were distinctly not prosperous, and though enquiry revealed the fact that occasional excellent crops had been grown within the area of the marsh, grain alone was on the whole rather a poor gamble, and stock farming more desirable.

Wide unutilized stretches within the marsh provide good grazing land for cattle and in ordinary years there is ample hay of a rather coarse quality to winter 20 times the number that are now kept in this district. The area in question is not far from 100 square miles in extent, and allowing five acres for each head of cattle for grazing and hay, the district could easily support 12,000 cattle or a thousand more than all cattle in the Westbourne and Lakeview municipalities in 1925. The soil, despite its alkalinity and weeds, could be expected to grow excellent forage and pasture crops, among them sweet clover and perhaps alfalfa.



In defence of the grain farming, it may be said that where drainage was good and where careful methods had been followed, very good crops of grain were being grown on land that was within the area, despite the dry season of 1926. That grain raising was not entirely satisfactory, however, was plain, for a large percentage of the farms were deserted.

On the whole, a careful system of husbandry, making use of forage crops in poor grain years and supplying an outlet for labor the year round, is to be recommended here. Sheep, swine and cattle must supplement grain and self-sufficiency must be the ideal aimed at on each farm.

#### *Glenella Municipality*

Stretching from the foot of Riding Mountain on the west to within six miles of Lake Manitoba on the northeast, the Municipality of Glenella occupies an area of 304 square miles in the lacustral plain of glacial Lake Agassiz. The only relief from the otherwise flat expanse of the plain is afforded by the beaches of the lake in the west, and by a series of ridges and channels.

The drainage of all save a small strip along the northern edge of the municipality is toward the east and the south; practically all the surface water finding its way into the Big Grass River, which is the only stream worthy of the name in the municipality. Due to the flatness of topography, drainage channels are almost entirely undeveloped, even the Big Grass River having no valley other than its present bed, though it carries great quantities during the flood season. The slope of the land from west to east is about 100 feet, giving an average fall of over four feet per mile, normally enough for fair drainage. However, a large part of this slope occurs in the western range (14W), leaving the average for the remainder of the municipality at less than 4 feet per mile.

The remarkable topographical features of the district are the beaches of the Lake Agassiz. Starting at the western edge of the municipality at the foot of Riding Mountain and journeying eastward for six miles, one crosses no less than 9 beaches, some of them rather indistinct, but others looming up to the proportion of small hills and stretching in huge swells with level tops in a direction northwest and southeast, paralleling the base of the Manitoba escarpment, which rises so abruptly to the west. Farther east, toward the centre of the municipality other beaches occur, but not in such great numbers.

These beaches have great significance from both soils and drainage points of view. So numerous are the beaches in the western ranges of the municipality that practically all the soils of this section (township 18 and the south half of township 19, range 14W) are affected. The beaches themselves are made up of water-sorted and stratified sand, gravel and cobbles. In some places boulders are numerous along the crown of the beach. The most numerous boulders occurred on the higher beaches of those farthest west, other beaches seemed practically free of large stones. Over the stratified sand and gravel of the beaches there is a covering of wind-blown loam, varying in the depth from a few inches to nearly a foot. This loamy surface is excellent soil, and its quality has induced many farmers to clear and cultivate the beach ridges. Obviously such lands with so open and coarse a subsoil are droughty, however, and in 1926 crops on these beaches were short and generally below average. Rye seemed able to make a fair crop on such land despite the dryness of the soil, and occasionally the crops made a good showing. Their mantle of wind-blown loam would, in wet years, enable these beach soils to produce good crops.

On the lake side of the beaches or toward the east, the gravel gives way to sands, most of which, where drainage is sufficient, make excellent soils. These sands, in turn, yield to a lake washed or eroded boulder clay similar to that of the Big Grass Marsh area.



On the west side of the beach the usual condition is swampiness. Upham (Page 56E, Montreal Survey and Natural History, 1888-89) describes the beach ridges as being from 3 to 10 feet above the adjoining land on the side away from the lake, and from 10 to 20 feet above the adjoining land on the side where the lake lay. It becomes apparent from this description that the beaches rising, as they did, above the surface of the adjoining land, and running in a continuous and unbroken rise for miles at a time presented very serious obstacles to drainage. Thus the usual condition on the land side of the beach, and this was common in Glenella municipality, was muck and swamp. In the west (R. 14W), these swamps were narrow, almost channel-like depressions, running between and parallel to the closely recurring beaches. There is some slope of the land toward the south; this is small, unfortunately, not enough to prevent swampiness behind the beach ridges; where streams have carved their way through the beach there is an outlet provided, but in the Glenella area these stream channels are very few in number. As a consequence a large proportion of the land in the municipality is swamp; older settlers, indeed, state that water commonly occupied the greater part of the area toward the west, prior to the ditching that has been done by provincial and municipal governments. In township 18 and the south half of 19 in ranges 12 and 14, or specifically in the southeastern parts of the municipality, the Big Grass River provides drainage and relief from the swamps.

Always in the swampy areas the land is alkaline, sometimes seriously so. This alkaline condition has been induced in exactly the same way as was described in the Big Grass Marsh report for lands of that district. Because of the great extent of the marshes the majority of the soils of this area are affected, but the condition is most serious in the west and northwest. Drainage and ridding the area of stagnant water will, in time, remedy this condition. (See report on Big Grass Marsh Area, page 150).

This alkali seriously affected the water supply of the area, making well water often unfit to drink either for man or beast. On the beach ridges, however, usually a plentiful supply of excellent water can easily be secured. Let it also be said of the beaches that they supply excellent building sites and abundance of gravel for road building.

Despite the wide effect of the beaches, the dominant soil type in the municipality is an eroded boulder clay or till. This soil is similar to the one described on the Big Grass Marsh report, under the heading of Lake Washed Boulder Till, and has a surface of wind-blown loam from 4" to 12" deep overlying a layer of gravel and boulders, which, in turn, is underlaid by heavy, though pebbly, subsoil, having a texture commonly called clay, but in reality a silty clay loam.

As stated in the Big Grass Marsh report this soil is droughty due to the obstruction of the upward movement of water by the gravel layer. In addition to this, it is often extremely stony. It occurs throughout the municipality and is extensively farmed, often with fair success. The main body of this soil occurs in townships 19 and 20, ranges 11 and 12 west, where it occupies practically the entire area.

#### *Alluvial Soil*

A far better soil is that built up by the alluvial deposits of the Big Grass River and occurring in ranges 11 and 12 of township 18. This soil is an excellent fine, sandy loam to loam surface soil with a subsoil of somewhat lighter texture. It has ample moisture-retaining powers, is entirely stone free and has the further advantage, due to its better drainage and manner of deposition, of being free from an injurious quantity of alkali. The most successful farms of the municipality are on this type of soil.

Another excellent soil occurring in rather limited areas was found south of the village of Glenella, and in the vicinity of Tenby. It was made up of practically unmodified glacial deposits, but contained few stones, no layer of gravel or sand





Pioneer  
Scenes  
in  
District  
Ten

between surface and subsoil, and showed no evidence of the objectionable alkalinity so common in this district.

Very similar to the above soil, but containing more pebbles throughout, and also more surface stones, was another soil that was discovered north and west of the village of Glenella (township 19, range 14, west). This also was a more than usually good soil for the area, and supported excellent growths of poplar and even scattered oak. While distinctly alkaline in reaction, the concentration of salts in this type of soil was not so great as to be injurious.

The only distinctly lacustral deposits or lake-water-laid soils in this area were also discovered near and to the west of this last-mentioned soil. This lacustral soil was a very heavy silty clay, bordering on to gumbo type, but was farmed and crops were doing well on it. It was, of course, entirely stone free, but its surface was very flat, and the natural drainage poor.

Peaty soils are common in an area so poorly drained on the whole as the municipality of Glenella. No very extensive areas of this soil occur, however, though it is to be found everywhere in recurring slight depressions and in the swampy



areas behind the beaches. Usually these peats are well decomposed and need only drainage to make excellent hay meadows or even arable land.

In addition to the above main types perhaps as many as a score of other minor types of soils exist in this area, but none of these would be found extensive.

Mr. Wm. Stewart, who made detailed examination of most of the unused quarter-sections in Glenella municipality, reports:

"In my opinion, a man going into this district should have a half-section, then he could find enough good land to grow some grain and winter feed for his stock and still have ample pasture. In my interviews with farmers in the district I found the main idea was that mixed farming was the only thing."

"The last few years have been poor years and most of the farmers have had to sell stock to keep going, thinking always that if they had a good crop they could buy themselves into the cattle business again. As yet they have not succeeded in doing this. It is to be remembered, however, that good money has been made in grain growing in this district, but it is not steady and most farmers would be doing more mixed farming if they had the money to buy stock."

"Concerning the beach ridges in this area it is well to remember that while the soil on them is generally too poor to grow good crops, these beaches make splendid building sites, and good water is always found there in abundance."

#### *Economic Considerations and Summary*

In addition to the above reports on soil and agricultural conditions, something must be said concerning the economic and social conditions in this area.

The municipality of Lakeview reports about 70 per cent. of its total acreage "unused," and only 8 per cent. of its area actually under cultivation. In 1921 there were 446 resident farmers in the municipality, and in 1925 there were only 249, several others moved out in 1926. Many of the abandonments were by soldier settlers, who had bought land and equipment at the peak of the price inflations. Sixty-one per cent. of the soldier settlers had moved out before the fall of 1925. Many homesteaders also, and even some of the old timers who had been fairly well established, found it impossible to remain. But it should not be supposed that there are no signs of prosperity in the Lakeview municipality. The writer travelled for several days in company with Mr. G. W. Langdon, reeve of the municipality, and interviewed many successful farmers, especially in townships 15, 16 and 17, range 9, west. From the records obtained in these interviews it is found that the average annual increase in capital worth of the settlers there is \$484.00. Part of this is due to the winter income from fishing, but three farmers who do not engage in winter fishing showed an average annual increase of \$405.00. In the west and northwest part the farmers interviewed were not so successful, and several spoke of moving out at the close of 1926. These men, with the others who have failed, have experienced not only the hardship of the general economic depression, but a series of poor crops, due to flooding for three years, and drought this last season. Two other considerations must be noted. First, the type of farming followed by many of the men who have failed was chiefly grain growing, which is generally recognized as the wrong system for this area. Secondly, a large number of the soldier settlers and homesteaders, who took up land in the period 1918-1921, were absolutely without experience, and many were physically and temperamentally unfitted for farming.

There is no doubt that men who understand stock-raising can make a living in this district, but they must be able to buy a half-section or even a whole section cheaply, or else lease grazing and hay lands in addition to their smaller holding. Summer dairying adds to the income of most of the successful men here, and is worthy of more attention by others.

Southwest of Alonsa there has recently been established an Italian colony on a co-operative basis, which hopes to make mixed farming and dairying its mainstay; this colony and its aims are discussed in the general report.



Many Ukrainian farmers have also moved into this locality, which has been almost completely vacated by English settlers. These newcomers have bought the land for a low figure, and by frugal living hope to make a success.

The following recommendations are made for this district:

1. Townships 15, 16 and part of 17, in range 9 west, are excellent for mixed farming and dairying, and a few good openings remain in this block.
2. The remainder of the territory is best fitted for ranching or summer grazing, preferably in conjunction with established farms in the more favored districts surrounding.
3. An intensive survey would probably reveal a few favored quarters which might be successfully farmed, but families settled on them would, in all probability, be widely separated, and the upkeep of roads, schools and other social agencies would be expensive.
4. Some of this land, which can be bought cheaply, could be utilized for fur-farming if that industry should experience another boom.
5. It has been suggested that part of the land in the neighborhood of the Big Grass Marsh be utilized as a Buffalo Park, and so indirectly through the tourist traffic become an asset to the community.

#### *Lawrence*

The municipality of Lawrence comprises an area of about 14 townships, lying between Lake Dauphin on the west, Lake Winnipegosis and Lake Manitoba on the north, and on the east the unorganized territory lying west of Lake Manitoba.

The oldest settlers came in here about 30 years ago, and settled in the East Bay district, which is in the south of the municipality, and adjoining Lake Dauphin. These people were of Anglo-Saxon origin. A few years later the Ruthenians came in from Sifton and settled south, around the north shore of Lake Dauphin. From these early Lake Shore settlements, the land was gradually taken up eastwards and north to Toutes Aides. Most of the settlers have been in this area from 11 to 20 years.

Not all this land was homesteaded. Large portions in some way or other got into the hands of land companies and other agencies. These concerns sold land for \$21.00 to \$27.00 an acre at the time of the extension of the railway and the close of the war. A few Ruthenians stayed on such lands, the other purchasers being unable to farm profitably under such high capitalization. This condition of affairs has been one of the biggest handicaps this area has had to face.

#### *Soils*

The Lawrence soils are characterized by a thin surface soil which is seldom free from stones. The subsoil is gravelly and open, with more or less stone resting on khaki-colored, fine, sandy clay, interspersed with gravel and pebbles.

The Lawrence soils may be termed a continuation of the Amaranth series modified in places by the height of the ridges and the denseness of the forest cover.

#### *Topography*

One approaches Lawrence municipality from Ste. Rose du Lac. The northern portion of the municipality of Ste. Rose and the southern portion of Lawrence consists of expansive lowlands about 5 miles from south to north, and from Lake Dauphin on the west to range 14 on the east. Much of this lowland, unfortunately, drains north through Lawrence and creates a drainage problem in this area.

The general topography of Lawrence may be termed gently undulating. Apart from the beach ridge about one mile from the shore of Lake Dauphin, the ridges are very gradual. The ridges, which are characterized by stony land and thickened poplar cover, run from south to northwest, following in general the shore line of Lake Dauphin.

There are five pronounced ridges, although other small ones constitute parts of the same series. The first ridge is the beach road along Lake Dauphin. This is



quite sandy, with only small stones and lends itself quite well to agricultural purposes. Crops of wheat going 25 bushels to the acre and of excellent quality, were observed. Practically all of this land is taken up, although on each farm considerable land can still be cleared.

Farmers interviewed here valued their homesteads at \$5,000 a quarter. Land recently purchased from the Hudson's Bay Company sold at \$10.00 an acre. This was all bush, difficult to clear, but had a good, sandy loam soil, reasonably clear of large stones.

This beach land extends about two miles east, where at the west slope of the second ridge lies low land with light peat surface soil and sloughs. This land would all have to be drained south. The ridge itself is quite stony, but capable of supporting excellent pasture crops. Hay grows abundantly in the low spots, but it is not of good quality. Some red top was noticed, but most of this was killed out by the water in 1925. Red top should do well when these sloughs are drained.

There is a slight depression between this second ridge and the third ridge, which lies about two miles east of Rorketon. In general, however, it may be said that the land lying two miles from the Lake to six miles east is mostly a stony ridge or series of ridges, which are not suited for grain farming. Ukrainian settlers, with a half-section or more, supporting reasonably good dairy cows would get a comfortable living off this land.



Farmstead of new settler from Central Europe. Lawrence municipality

In the middle of the municipality, roughly comprising range 15 west, is the drainage basin of this area. On the west we have the beach ridges, and on the east the height of land between Lake Manitoba. This area was formerly a series of sloughs and ridges. The ridges are not as stony as those to the west, but the sloughs were so flooded in the spring as to make large areas unsuitable all the year around.

The drainage work done in the last five years has completely changed this. This area now presents a fine park-like aspect reasonably free from stone and well-fitted for dairy farming and capable of growing coarse grains for feed and cultivated grasses and pastures. Unused lands, of which there is considerable in this area, could be successfully settled by Ukrainians of the same type as are settled here now. What they need is help in keeping better stock. At present their young stock is poorly handled and seriously handicapped before they ever start milking.

Range 13 west, comprises an area distinctly different to any other parts of the municipality. In the southern portion, as far north as township 29, it is covered with a dense stand of black poplar, averaging from 6 inches to a foot in diameter. The soil itself changes as the topography is high or low. In the high spots a light, sandy loam is interspersed with stone and underlaid with clay, mixed with gravel. In the low spots peat from 6 inches to a foot is found. In the north portion of this area the wooded portion turns east and leaves in range 14 west wide meadows



interspersed with poplar and willow islands. This low land presents many difficulties of drainage on account of the surrounding ridges. This whole area should be withheld from settlement until the other portion of the municipality is settled.

**Stones:** Stones are plentiful all through this district, varying from small gravel and pebbles on the lower beaches to boulders and large stones on the wider ridges.

**Geology:** Lake washed drift.

**Native Vegetation:** Balm of gilead, black poplar (6 inches to 1 foot in diameter) aspen willow, no brule, mixed grass and herbs.

#### *Roads and Drainage*

The progress made in drainage and roads since the advent of the administrator in this municipality is most marked. The roads in a few years will equal any of the best unsurfaced roads in the province.

The construction of these main highways has been coincident with the development of a drainage system. Although the topography of the country presents several grave hindrances to economical and efficient drainage, these are largely being overcome, and in a few years spring flooding should not be a serious problem in any ordinary years. These systems of roads and drains are a decided asset in the development of this area.

#### *Agricultural Uses*

Unfortunately for this area the high prices for grain during the war came when the settlers had just about completed clearing their land. For a few years fairly successful crops were taken off, but as there was no railway into this area at the time, little of the benefits of such crops were felt by the farmers. With the close of the war two things happened: Prices fell and the soil, which is not adapted in any way to continuous grain farming, failed to return even average yields after two or three years cropping. Much land, especially purchased land, was abandoned, and sow thistle took hold in these fields and soon spread to adjacent cultivated and hay meadow lands. The stony and shallow nature of the soil has made successful combatting of the sow thistle difficult.

Last year the heavy spring and May rains flooded out most of this country. This year the drought, which was felt in the north country, hit the Lawrence area particularly hard on account of the alkalinity of the soil.

The Ukrainian farmer in this area has done remarkably well considering the handicaps that exist here. In the first place he and all his family are not afraid of hard work. In the second place, he is not a grain farmer by experience nor desire, and during the years when he was clearing the bush and stone he gained a comfortable living from the livestock and poultry he kept for his own use, and the cash he received from selling cream. It may be said that the large percentage of the Ukrainians in this area are satisfied and making progress.

The Finns came in later and are not on as good land as the Ukrainians. However, much of their land is being favorably affected by drainage and with suitable agricultural practices they should find permanent and successful settlement here.

The French settlement at Toutes Aides bolstered up by the winter fishing, is reasonably secure as a permanent settlement. Some of these farmers are splendid examples of successful adaptation to serious local handicaps.

The Anglo-Saxon settlement in this area is making the least satisfactory progress of any. Many reasons may be given for this. In many cases of abandonment the settler was manifestly unfitted for farming. Several abandonments were by artisans from the city, who were intrigued by high prices for farm products during the war, but who were patently unfitted for farming in any district, and ill-equipped with experience or capital to stand the economic depression of 1922 and 1923.

The lack of drainage in the early days was responsible for causing many Anglo-Saxon settlers to make poor choices in selecting lands, which, though better drained and more easily cleared, were the stoniest and most shallow soils in the area. A



few of these settlers have made remarkable progress on such lands, but soon reach a point where their pioneer labors fail to add increased revenue. These farmers, if on better land, would be the most progressive and successful of farmers.

*Agricultural Problems of the Area*

*(A) Soil Problem*

(1) The shallow and stony soils of this area make the district unsuitable for grain growing. Unfortunately, not all the farmers realize this. Most farms are capable of growing a small acreage of grain for feed purposes, if properly worked and generously treated with barnyard manures. In general, neither of these practices have been followed.

(2) Drainage. This has been an acute problem, but should be of diminishing concern.

*(B) Economic*

(1) Lack of capital. Few farmers in this area have the ready capital necessary to change from grain growing to dairy farming. At present the average run of milk cow is poor. There is a general desire to keep better stock, and a feeling that grain growing can never be successful. Some form of assistance must be given to help these people change their present type of farming if they are to be kept on the land.

(2) Taxation. Local taxation in this area was once as high as \$70.00 a quarter. This was an intolerable burden during the years of poor crops and falling prices. However, under an efficient administration taxes have been considerably reduced. To give this municipality a chance to hold down expenditures and confine settlement where public improvements have been made, the contemplated plan of taking off the unsettled area in range 14 west, should receive careful, and, we feel, favorable consideration.

*General Recommendations*

The first need in this district is a comprehensive agricultural policy, which will enable the present settlers to make good. To do this any or all the following plans should be adopted.

- (1) Assistance to purchase dairy cows.
- (2) Supervision in changing from grain growing to dairying.
- (3) Larger holdings.
- (4) Settlers should be kept out of range 14 until the land in 15-16 is successfully settled. This land is expensive to clear and difficult to drain.

The suitability of this area for Anglo-Saxon settlers is questioned. Farmers from continental Europe predominate at present and this might prove a deterrent to successful settlement of isolated Anglo-Saxons.

*Ste. Rose Municipality*

The municipality of Ste. Rose, which lies south eastward from Lake Dauphin, is settled chiefly by French and Belgian settlers, who have in past years been successful, both in grain growing and in dairying.

*Topography and Soil*

The municipality is fairly level, with the exception of a stony ridge which extends from the southern boundary down the centre of township 24, range 15 west. This ridge is wedge-shaped, with the point lying northward, and is an outcrop of boulder till rising above the alluvial deposits, which make up the soil of the rest of the municipality. There are also some few gravelly sandy beaches. The soil of the ridge is a chocolate loam, plentifully supplied with boulders and underlain with khaki-colored clay. The ridge is wooded with a scrub growth of poplar, aspen and willow.

The surface soil west of the ridge is a chocolate clay loam or silty clay loam, with sandy subsoil slightly lighter in color toward the north. On the eastern side of the ridge the soil is gravelly and stony. There are also small areas of peat and toward the northwest corner of the municipality there are some alkaline flats.



### *Water Supply*

The town of Ste. Rose du Lac and many of the farms in the immediate neighborhood obtain abundance of excellent water from artesian wells drilled into the limestone rock. The creamery in the town has a splendid well flowing with a four-inch stream.

In the southern portion of the municipality, however, there is some difficulty in securing a plentiful supply of water.

### *Transportation*

The district is served by the branch line of the Canadian National from Ochre River through Ste. Rose du Lac and northward to Rorketon in the municipality of Lawrence. The Dauphin line of the Canadian National also passes through the southern portion with a station at Laurier.



Looking East from the Riding Mountains at Kelwood.

The main roads in the municipality are very good, but towards the east they are poor, owing to prevalence of stone and some undrained meadows.

Considerable land in this municipality has been abandoned, especially that on and bordering on the stony ridge mentioned above, but numerous opportunities exist on the loamy soil to the west, which should prove attractive to settlers of English or French origin.

### *Rosedale, Langford and Lansdowne*

There are practically no lands unused in the municipality of Rosedale that are suitable for agriculture. The vacant lands lying adjacent to the Riding Mountain Forest Reserve have not only poor soil, but are cut up with deep ravines and steep hills.

The unused land in the southeast of Langford municipality and the extreme south of the municipality of Lansdowne in the sandy soil zone is the same as is found in North Cypress. Most of these lands are unfit for anything but grazing purposes, and can be used most economically and productively as pasture for the sheep and cattle of farmers who are on the adjacent lands of heavier soils.

The unused lands of northeast Lansdowne and northwest Westbourne present some opportunities for successful settlement. It should be remembered by prospective settlers that the soil varies from a sandy loam to sand and gravel on the ridges. The main problem of settlement here is to realize that the lands are not up to the average of the district, but could be successfully farmed if considerable stock were kept, and the soil fertility maintained with grasses and clovers.



## District Number Eleven

### *Southern Slope of Riding Mountains*

District number eleven is bounded on the north by the Riding Mountains and on the west by the Saskatchewan boundary. It comprises the municipalities lying east up to Rosedale municipality and extends south to include the municipalities of Archie, Miniota, Hamiota, Blanshard, Saskatchewan and Odanah.

The northern municipalities of the district lie in the highest area of agricultural land in Manitoba and this fact has considerable effect on the farming methods followed. This northern portion of the area as far south, roughly speaking, as the Canadian Pacific Railway was once fairly solidly covered with bush. The remainder of the district, except for the area in Ellice west of the Assiniboine, contains considerable park land. This abundance of wood combined with plenty of good water early attracted settlers into this district. Its park-like appearance and large proportion of good soil has made it one of the most attractive farming opportunities in Manitoba and some of the present unused lands are regarded by the Land Settlement Board and this survey as offering the best chance for successful settlement on virgin land in the province.

Nearly 14 per cent. of the total area or 351,490 acres are unused. Of this total 40 per cent. is owned by the Dominion Government, only 3 per cent. by the municipalities and 9 per cent. by the province, and 15 per cent. of the total is owned by persons residing outside of Manitoba.

The area of improved land on the occupied farms is relatively small. Only 27 per cent. was under cultivation in 1921. This is largely explained by the nature of the topography, which in many places is broken by streams and valleys. Considerable clearing has been done, however, since 1921, but the statistics giving this information are not available at present.

This district includes 215,040 acres of unorganized territory lying in the Riding Mountain Forest Reserve. Of this area 48,160 acres have been surveyed by the Dominion Government, but are not open for settlement. Some land on the reserve was opened after the war and a report on this settlement is included below.

#### *Agricultural Practices*

On account of its high altitude this area is subject to frosts. As a result, oats is the major cereal crop grown, although wheat is also successfully grown.

Since 1921 barley has increased 169 per cent. in acreage, flax 523 per cent. and fall rye 636 per cent.

There has been a slight decrease in wheat and oats, but oats still continue to be the major crop, and more especially in regard to quality this is one of the best oat growing districts in Western Canada. Registered seed oats were shipped from Solsgirth to Argentina and the Birtle farmers are developing their district into a seed barley centre.

The district has been singularly free from many of the worst noxious weeds and this further favors seed production. Recently, however, the sow thistle has been making gains and stern measures must be taken for its control.

All the natural advantages of water, shelter and pasture favor this area for the production of livestock. The farmers have always sensed this and of late years have further increased the tendency to diversify their farming operations.

Of particular note in this area is the success of co-operative seed oats marketing in the Solsgirth district. The community has always been to the fore in growing registered seed oats, and favored with a splendid community spirit, the farmers here have established an enterprise which leads the way for other districts in Manitoba.



*The Unused Lands*

The information on unused lands in this district is adapted from the reports of Professor C. R. Hopper, Brigadier-General H. M. Dyer and Mr. W. K. McKenzie, who were responsible for the field work. The reports on Clanwilliam municipality and Riding Mountain Forest Reserve are based on the work of the field men. Use was also made of a report made by the Dominion Land Settlement Branch, which report was kindly loaned to this survey by Mr. F. J. Freer, superintendent of this branch in Manitoba.

*Municipality of Ellice*

Ellice municipality is divided into two quite dissimilar areas by the Assiniboine River, which comes in near the northwest corner of the municipality and goes out near the southeast corner. The area north and east of the river, somewhat less than half the municipality, is of the same type as the land found around Russell, Foxwarren and Birtle. The land itself is black loam with clay sub-soil. This area has very little unused land and what there is, is below the average for the area. Like all the rest of this area adjoining the Riding Mountain slope, the land is rather badly broken by sloughs, which, however, have a value in the production of wild hay. The land varies also in the extent to which it is covered by scrub. The vacant land in this area, like most of the vacant land from Minnedosa to Russell, is below the average in being more broken or more heavily covered with scrub than the average half-section; in most cases both objections hold.

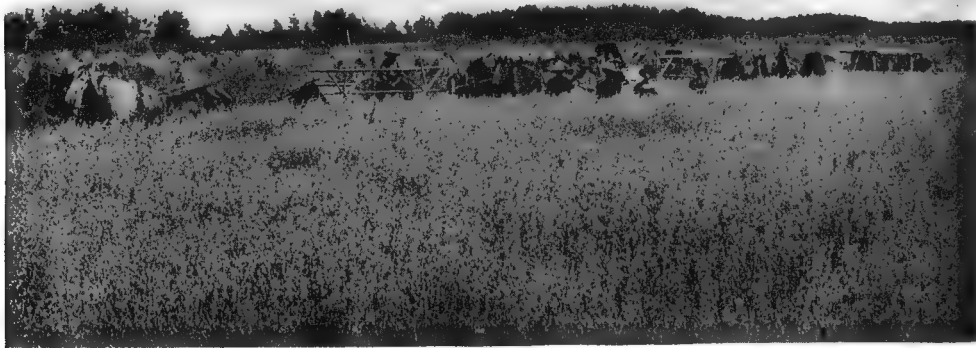
The area south and west of the Assiniboine River, rather more than half of Ellice municipality, is of an entirely different nature. The bulk of this area is a great level sandy plain, the north fairly heavily covered by poplar scrub, but for the most part park-like in appearance. The land is not so sandy but that it is everywhere covered by a short growth of grass, with clumps of poplar scattered over the whole area.

The extreme southwestern portion of the municipality, made up of sections 2, 3, 4, 5, 6, 7, 8,  $\frac{3}{4}$  of 9, 10, 16, 17 and 18 of township 16, range 29 west, is on a lower level than the sand plain and is first-rate land. The sections, with well-fenced farms, good buildings, good roads, present an entirely different appearance to the remainder of the area west of the Assiniboine. Other than the section on the southwest and a few scattered half-breed clearings in the northwest, there are practically no homes or buildings in the entire area.

Much of this area has at one time and another been under cultivation and a small percentage continues to come under cultivation for a year or two and is again abandoned. Unquestionably the land is not suited to the general type of farming followed in Manitoba. The land will not continue to bear crops of wheat, oats or barley with summerfallow as an alternative. During the last few years town farmers and land exploiters of that class have been breaking up fair-sized acreage with tractors and have taken off one crop of wheat followed by a crop of fall rye with very fair success.

Every one interviewed in this area, from the half-breed settlers on the north to the municipal officials, believes that under the proper system of tillage and rotation of crops something can be made of this area. Brome and sweet clover have been proven to do well and it is obvious from the practice of local exploiters that wheat and fall rye do well for a couple of years at least after breaking. Every one interviewed was of the opinion that men with capital, who knew what they were doing and who would farm large areas with proper rotation of grasses and clover, might make a first-rate success. Most of this land can be at present purchased at from \$2.00 to \$4.00 per acre. There seems to be equal unanimity of opinion that the area is not suited to the usual type of small farmer endeavoring to make a living on a half-section of land with the usual capital and following the usual cropping practices.





Oats is the major grain crop in district eleven.

Water is reported to be easily procurable in wells dug from 12 to 15 feet deep. Roads in the ordinary sense there are none. Well-worn prairie trails wind across the plain at not wide intervals. Due to the nature of the soil these trails might well lay claim to be the best roads for auto traffic in Manitoba.

On the whole, the evidence seems such as to warrant a thorough investigation by competent agricultural and soils men. Besides this investigation it might be wise for the municipal authorities, the Provincial Government and Agricultural College to co-operate in working out a series of tests and demonstrations with the farmers now living in this area. If such experiments will lead to making this large area more productive the authorities will be amply repaid for the small sum involved in carrying on this work.

#### *Silver Creek Municipality*

The municipality of Silver Creek has sixteen and a half sections of unused land. Only about two quarters of this are suitable for immediate settlement. About three sections in all with considerable labor can be turned into farm homes. The remainder of the land, or about eleven and a half sections, is land which under present conditions can only be used to any advantage by an adjacent farmer in need of cheap pasture.

One half of Silver Creek municipality is of an open rolling nature, broken by occasional sloughs and small lakes. This portion of the municipality includes township 20, ranges 26 and 27, the westerly three-quarters of township 21, range 27, and the west and north half of township 19, range 27. In this area, which resembles the best sections of Russell municipality, adjoining it on the west, the farms on the average are large, many being more than the full section in extent. The early settlers, who homesteaded here upwards of 40 years ago, were Scotch-Canadians, chiefly from Ontario. These men or their sons are for the most part still on the land. This section of the municipality presents a fine picture of prosperity. Few districts in Manitoba can present a higher percentage of high-class farm homes. Oats is the chief cash crop, but cattle have played a conspicuous part in the development of this section. The amount of grain shipped out may be surmised from the fact that Silvertown, six miles from Russell, with only one store and railway station, has four large grain elevators.

The area north of Angusville, comprising the top two rows of sections in township 20, range 20, all of township 21, range 26, and the eastern fringe of



township 21, range 27, is settled by Ukrainians. The land here is distinctly more of the character of Riding Mountains fringe. It is more sharply rolling, more cut up by creeks and deep little lakes, and was originally more heavily bushed than in the south and west portions of the municipality.

This section of Ukrainian settlement shows very little of the Canadianizing influence that has been at work around Sandy Lake. Practically all of the houses are log, plastered and whitewashed outside. The majority are thatched in the peculiar style of the peasant hut of Central Europe.

According to information which was gathered locally, about one-third of these farmers are in comfortable circumstances with money in the bank and no debts. About one-third were mortgaged and would pull through with careful application to their farms. The remainder are said to be in such circumstances that they are seriously in danger of losing their farms.

Most of township 19, range 26, and the east and south half of township 19, range 17, is low-lying and sparsely settled. This area, both from the nature of the land and the distance from market, is one of the least attractive in the whole of this district.

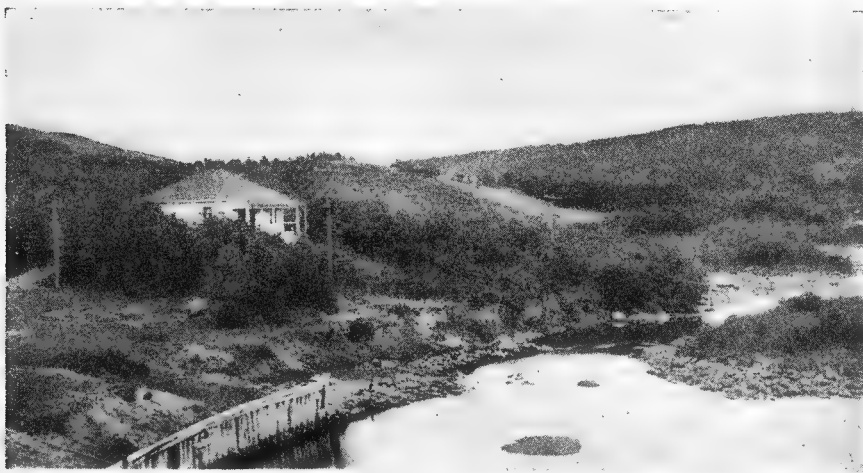
The land in Indian Reserve number 62, Way-Way-See-Cappo, seems to be equal to the very best land in the district. While some Indians are doing well and making a serious effort to farm, on the whole only a small portion of the available arable land is being used on this Reserve.

#### *Municipality of Minto*

The municipality of Minto has very little unused wild land. Section 26, township 15, range 18, belonging to the Hudson's Bay Company, and southwest 35 is of this nature. It is almost entirely river bottom and hill and is unfit for farming by itself. At present it is fenced by a number of neighboring farmers who use it as a community pasture.

The west half of section 19, township 15, range 18, is wild land and might be made into a farm by itself, but is badly broken and rough, with fairly heavy poplar scrub more or less covering it.

In this municipality there are eight 80-acre farms, one hundred and twenty-five quarter-section farms, one hundred and three farms of a section and a quarter each. It is evident that one-quarter and one-half sections are the favored size



Valley of the Little Saskatchewan near Minnedosa



here. This is borne out by the fact that according to the statistics of Mr. Lamont, the secretary-treasurer of Minto, and Mr. Harrison, barrister for 11 of the 46 operating more than half-sections, many have expressed the desire to sell part of their holdings, usually an improved quarter. Others holding more than half-sections have for the most part sons growing up who will need farms and present holdings are likely to be subdivided in this way.

This municipality has been settled for about 40 to 50 years by Scotch and English settlers, chiefly from Ontario, and comparatively little change has been made in the character of the settlement. One section was bought in 1920 by a Ukrainian. Purchase price for the section was \$45,000 with \$8,000 down. In spite of less than average crops and no revenue outside the farm, about \$20,000 of outstanding principal has been paid since 1920. The purchaser in this case, however, was unusually well supplied with home help, having five grown sons working with him.

One good quarter of improved land three miles from town, with a considerable portion broken, fenced but without any buildings, was bought this spring for \$3,500.

#### *Shellmouth Municipality*

The most distinctive feature of this municipality is to be found in the fact that both the Shell and Assiniboine Rivers flow through it from north to south. Near the south of the municipality the Shell takes a right turn to the west and joins the Assiniboine in the southwest portion of the municipality. These rivers divide the municipality. The portion of the municipality nearest to the Riding Mountain and east of the Shell River is rougher land and was more heavily wooded. The land is a sandy clay and is somewhat stony in places. This section of the municipality is chiefly settled by Ukrainians.

The portion of the municipality between the Shell and Assiniboine is heavier and blacker land, not quite so stony and originally was not quite so heavily wooded. This and the remaining portions of the municipality are settled chiefly by English and Canadian settlers, the latter originally from Ontario. The land west of the Assiniboine and south of the Shell is lighter than the central portion, better suited for wheat, but on the whole not as good land as that between the two rivers.

The municipality, or at any rate the western two-thirds, was settled fairly thickly by pioneers in 1883, who "followed the survey" and filed on homesteads here when the nearest railroad was at Minnedosa, about 130 miles away. When the location of the C.P.R. west of Minnedosa was altered many of the homesteaders left. The call for volunteers for the Riel Rebellion also took many away. In general only these few settlers who had brought their families and had settled down to make a home remained.

Being so far from the railroad and influenced by the abundance of hay, which could be cut in the river bottom, especially the Assiniboine, and the abundance of free pasture, the early settlers went in chiefly for cattle. Some of the early pioneers worked up to herds of 400, the average had 150.

With the extension of the C.N.R., from Russell through Roblin, and the other branch of the C.N.R. from Russell to Dropmore, settlers came in afresh. Soldier settlement after the Great War completed settlement up to the present stage, where there are about 40 quarter-sections of wild land left. With the increased settlement the older settlers found it necessary to cut down in their herds and change their system of farming. The presence of the two rivers, however, giving abundance of hay and water still encourages those who own land adjoining to keep more than the average number of cattle. Many farmers still have 40 to 50 head of cattle. It is common to find farmers milking 10 to 15 cows. A number of farmers have milking machines. Monthly cream cheques of 50 and 60 dollars are not uncommon. One farmer interviewed had a monthly cream cheque all the year around averaging \$150.00 per month.



Well water supply is a variable feature. One farmer has plenty of good water at 15 feet. His neighbor dug 80 feet and got only a dry hole. A third has plenty of water at 130 feet, but at a cost of \$1,000, engine, pump and all. The municipality is well supplied with railroad facilities and market towns. Very few farmers are more than six or seven miles from market. Roads throughout are good average dirt roads, with a well-built graded road on the south hill of the Shell River, three miles from Inglis. The necessity of teaming up and down the hills is a disadvantage to most of the farmers living in the central portion of the municipality. This, however, does not seem to be regarded by them as a serious disadvantage. None of the hills are particularly steep.

Crops have been below average for two or three years and many farmers are suffering from the too great optimism brought about by war prices and splendid yields of earlier years. Too easy rural credit helped the work along. On the whole, however, hardly any farmers were met with who were not confident of pulling through and ultimately clearing off all obligations and improving their homes.

The wild lands still left are naturally not the best. They are a little more broken by sloughs than the average, a little more heavily wooded or perhaps a little more stony. Practically all of these, however, could be made into good farms. The cost of labor of clearing and breaking is such that only a man with experience and capital enough to outfit himself and pay say 25 per cent. of the land price should tackle the wild land proposition.

#### *Boulton Municipality*

Boulton municipality has still a good deal of wild land, especially in townships 23 and 24 of range 26. Township 22 of range 27 has been settled fairly thickly for nearly 30 years. The other three townships which go to make up the municipality have been settled for about 10 to 12 years. Only the first portion settled, township 22 of range 27, has English settlers. All of the northern four townships are settled by Ruthenians, Roumanians and Germans. The latter is the predominating nationality in the municipality at the present time.

Township 22 of ranges 26 and 27 is distinctly the better portion of the municipality. The land is level with only occasional breaks by shallow sloughs. This portion was on the margin originally between park and bush country. The northern two-thirds of the municipality was more heavily wooded and is more broken by lakes and sloughs and is more stony. The land of the northern portion is a sandy loam for the most part. The southern portion is a good quality black loam.

The strip of settlement on the north is only about four miles wide from the western boundary. Farther east the land is typical Riding Mountain fringe, fairly sharply rolling and heavily covered with poplar bush. Ruthenians and Roumanians interviewed in this northern portion were uniformly in rather poor circumstances. Most of them were on quarter-sections with homesteader type of buildings. Not many seemed to be heavily involved in debt. They are simply carrying on with what they have, apparently fairly content to make a very ordinary living.

The German settlement farther south is in distinctly better circumstances, with better farms, better buildings and better outfits. Very few claim to have made any progress these last few years and at present are rather pessimistic. This pessimism seems due to a natural reaction caused by the drastic slump from war prices, coupled with crops poorer than the average these last three or four years.

Most of the farmers interviewed were emphatic in their belief that a homesteader on land newly taken up in the former Riding Mountain Lumber Reserve had a very poor chance of success, unless he had capital of his own to carry him along. On the other hand, the only two homesteaders interviewed in this newly settled area were well satisfied and even enthusiastic about their prospects.



There seems to be no reason why all the wild land in this municipality will not ultimately be under cultivation. Very little of the lands seem to be too broken to be suitable for farm lands. When the railroad goes north from Inglis, if it ever does, it will greatly improve conditions by bringing settlers closer to market. Many are now 10 to 12 miles from railroad and all of the more newly settled are 14 miles or more. Roads are very fair throughout, except to the most outlying homesteads. The farmer on section 36, range 27, has a car and has a good auto road to either Roblin or Inglis. Water is plentiful and easily accessible, making this area well suited to stock raising and dairying. On account of distance from railroad for the majority there does not seem to be much disposition to milk more cows than are necessary for family use. Most of the settlers have good gardens.

The municipality, for a newly settled area, is unusually well supplied with high-grade schools.

#### *Odanah Municipality*

This municipality has been settled in part from 40 to 50 years by settlers of English stock. The ground is of a rolling nature, broken by sloughs and originally fairly heavily covered with poplar bush. The land is of a sandy loam nature, but fairly uniform in quality, somewhat heavier in the southwest township of the municipality than the other three.

With three railroads distributed over its 12 miles of depth, the district is well supplied with marketing facilities. Roads are good throughout. Portions of the highway are gravelled. Water is easily procurable and most farmers still have some wood on their own farms.

Not nearly as much unused land was found as listed by the secretary of this municipality, who was unfortunately absent while the field men were in the district.

In township 13, range 17 west, the northwest quarter of section 10 was bought in March, 1926, by a young farmer formerly resident at Moore Park and is being improved as a farm home. Forty acres were broken and cropped this year.

Southwest 15, northeast 15 and southeast 17 of the same township were bought this year by adjacent resident farmers and have been added in each case to previous holdings of a quarter-section. In the case of southwest 15, the papers for transfer of this land had been signed not half an hour before our visit. This particular quarter was bought for \$2,200 on half-crop payments, vendor to carry taxes out of his share for three years, and no interest to accrue for that time.

Northwest 10 was purchased this spring for \$3,000, with practically no improvements except a shell of a frame house and some 15 acres broken some years before but since allowed to revert to the wild state. The purchaser had no payments to make until October, 1927, and had paid down no cash. Vendor was advancing some assistance in the way of fixing up the house. The newcomer, evidently a hard worker, was optimistic that a man could make a reasonably good living on a quarter-section without much capital to start.

There are three half-sections of wild land in township 13, range 17, each capable of being turned into a home by a man of energy and experience with about \$2,000 to equip the farm with buildings, some stock, etc., and to carry himself over until the farm begins to be revenue producing. These half-sections are just slightly below general average for the district. Around one hundred acres per quarter could be broken. These half-sections are: East half, section 11, township 13, range 12; west half, section 21, township 13, range 17; and northeast 6 and northwest 5, township 13, range 17.

Altogether there are six half-sections of wild land in this municipality suitable for farms. Also seven or eight scattered quarter-sections. The former could be handled by men of energy and experience with sufficient capital for equipment and to carry over for a year at least. It is doubtful if the isolated quarter-sections



are safe propositions as separate farms just now. They will probably be taken over by adjacent farmers. One farmer stated that such quarter-sections were worth at least \$1,000 more to resident farmers than to a newcomer, as he did not need to build a house or stable.

#### *Harrison Municipality*

Harrison municipality is divided into two distinct communities. The lower one-third of the municipality, roughly speaking, from the Minnedosa River south, is settled by Scotch-Canadian and English settlers, with Newdale and Basswood as their market towns. The northern two-thirds of the municipality, roughly, from the Minnedosa River north, is settled by Ruthenians, with Sandy Lake as their post office and market town.

The area from Newdale north to the Minnedosa River was originally prairie or park country. It was settled from 1877 onwards by a thrifty type of Ontario settler, who for the most part settled on homesteads and pre-emptions and established good farms and comfortable homes. Many of these original settlers or their sons are on this land yet. Hardly any farmers are to be found here who have not been on their land for at least 15 years. Most of them were born in this locality.



Fertile rolling lands, Riding Mountain Slope

Oats are the chief crop grown here. The land is of excellent quality, but is badly broken by sloughs which produce good yields of wild hay. In the early days yields of 100 bushels to the acre of oats were not uncommon. Crops for five years past, 1920-25, have been below average, and although there have been no failures or very poor crops, the general tone of the district is not at all optimistic; yields are lower than early years, probably due to weeds and some shortage of rainfall, costs of operating are nearly double what they were 20 years ago, while prices are only about one-third higher.

The northern two-thirds of the municipality was settled about 1901 by Ruthenians brought in by the Dominion Government. This part of the municipality at that time was considered useless by the settlement to the south for anything except firewood and berry picking. Most of the land was covered by green bush or burnt-over timber. In addition, it was abruptly rolling and rough and cut up by numerous small lakes and a few large ones.

The original Ruthenian settlers built themselves small log houses and set out to clear the land. Spring and fall the men would walk 15 to 50 miles to the south for work. Gradually they got together stock and implements, clearing and breaking a few acres each summer, between seeding and harvest. The women remained



at home and worked at clearing the land, picking roots and clearing stones. By the beginning of the world war the face of the country side had been completely changed. Much of the land had been cleared, better buildings began to appear. The men no longer went out to work, the younger generation had learned the English language and readily adopted Canadian standards of living. The older generation, however, were still in control and the community was in excellent financial condition.

The war brought greatly increased prosperity. Operations were expanded, the best modern machinery was installed, cars bought and in every way the community seemed to have come up to Canadian standards.

The slump in prices caught this community in just the same way as many if not all Canadian farming communities. Farm incomes deflated more rapidly than the recently adopted standard of living. Farms were mortgaged and debts contracted for machinery and equipment which soon had the community in an unenviable financial position. With few exceptions, Ruthenians who had moved out on to prairie farms in the Canadian settlement failed and had to give up their farms. Those homes, however, which maintained a fairly plain style of living and the frugal habits of the original settlers are in excellent position today.

In general, to any one who knew the type of country 20 years ago, the whole community presents a splendid monument to courage, hard work and perseverance. In general, it is a community of good homes, well-tilled, clean fields and fair roads. The schools are well supported and are a credit to the people. Every farmer met with spoke reasonably good English. The young people, in dress and manner, cannot readily be distinguished from any other Canadian.

It is a noteworthy fact that at the time of the Ruthenian settlement there were some 18 or 20 English families living north of Minnedosa River. This is now reduced to five or six. The Ruthenians in their rising prosperity were offering more for the farms of the English settlers than they had to pay for equally or more desirable homes in all Canadian communities.

#### *Clanwilliam Municipality*

This district lies immediately south of the Riding Mountains, and consists of rolling to hilly country with many small lakes and several streams. There is practically no open, uncultivated land. The bush consists of light poplar and willow scrub and the average cost of clearing would not exceed \$10.00 per acre. Of the uncultivated land, approximately 60 per cent. when cleared would be suitable for cultivation. Thirty per cent. is fit for hay and pasture, and the remaining 10 per cent. consists of lakes, swamps, etc. The soil is, in general, a good black loam with a clay sub-soil, although somewhat lighter towards the northeast. There is some stone in the neighborhood of the Rolling River. The Rolling River runs to the west and south, and numerous small streams empty into this river. Otter Lake is located approximately in the centre of the area, and, in addition, there are a considerable number of small lakes, the average water surface being four or five acres. The natural drainage is excellent. Splendid domestic water can be secured in wells varying in depth from 12 to 30 feet. The rainfall is plentiful and the district has never experienced a crop failure from drought in the past 15 years.

The principal cash crops are wheat and barley. Wheat is more favored in the west side of the district, but barley is given the preference on the eastern side, owing to the danger of early fall frosts due to a higher elevation, this portion being about 200 feet higher than the western slope. Excellent yields of both of these grains are secured, the wheat average, over an extended period of years, being in the neighborhood of 20 bushels per acre. Oats are grown only to the extent that feed is required, the average yield being approximately 35 bushels per acre. The district is particularly suited to stock raising and dairying, and the farmers in recent years are paying considerably more attention to this branch of farming.



Insufficient attention has been paid in the past to the quality of stock, but there has been considerable improvement in recent years, owing to the introduction of pure-bred sires. Swine are raised for home consumption, but few sheep are kept; all the farmers have poultry flocks.

Excellent market facilities for all farm products are provided at the towns of Erickson and Clanwilliam, as these points have good general stores, hardware stores, lumber yards, implement dealers, druggists, garages, banks, etc. There are loading platforms at Erickson, Clanwilliam and Crocus Siding; Erickson has two grain elevators and Clanwilliam has four.

The main roads to the towns are good, and all roads are passable at all times of the year. The district has ample educational facilities, as there are eight rural schools and a fine town school at Erickson. There are three churches in the area, meeting the needs of the following denominations: Swedish Baptist, Norwegian Lutheran, Swedish Lutheran. The nearest hospital is at Minnedosa, 15 miles south. There is a Community Hall at Erickson and also one at Scandinavia post office. There is a municipal doctor who covers all this entire area.



Assiniboine Valley, near Shellmouth

Erickson, Clanwilliam and Scandinavia are the social centres. There are moving picture theatres at Erickson and Clanwilliam and both these points have locals of the United Farmers of Manitoba. Socials and dances are held throughout the rural communities in the winter time and picnics in the summer time. Football and baseball are the principal sports in the summer and skating in the winter.

This district abounds in small game of all sorts and the fishing in the lakes and streams is excellent. Big game can be secured in the Riding Mountain Forest Reserve, which adjoins the district.

This district was settled about 25 years ago, the early pioneers being Scandinavians from the States. The later settlement consists principally of Scandinavians direct from Norway, Sweden and Denmark. While there is a sprinkling of Anglo-Saxon settlement, yet the majority of the farmers are Scandinavians. They are proving to be good citizens and their children are growing up into good Canadians. They have a very high reputation for industry and thrift. While the old timers have not gone in for elaborate buildings, and have been content to live very moderately, still they have comfortable homes and are in a good financial position.

From reports and information available, there appears to be 64 vacant improved quarter-sections in this area. The land is practically all held by non-resident private citizens. Quoted prices for this land range from \$8.00 to \$25.00 per acre, depending upon the location, soil, terms, etc.

A careful inspection was made of practically all of the unused lands in this municipality. Only a small proportion can be termed first-class or equal to the



best land in the district. About half the unused land is second-class land, which with considerable labor and self-sustaining farming could eventually be brought under successful cultivation as mixed farms. The remainder of the land is too hilly or contains large areas of sloughs or lakes. Owing to the predominance of the Scandinavians throughout this district and owing to the amount of clearing necessary in order to make a farm of any unimproved unit, it is felt that very fair opportunities indeed are offered for the settlement of Scandinavian peoples, who would find the social atmosphere congenial and would readily become part of the community life.

#### *Riding Mountain Reserve*

"In 1921, and again in 1922, several townships were withdrawn from the Forest Reserve in the vicinity of Erickson and Grandview, and were divided by the Land Settlement Board into farming units, available for entry by returned soldiers. The land is rolling, and much of it was covered with bush and timber, but the soil generally is first-class, and these lands are unquestionably the most desirable free Dominion lands that have been opened up in Manitoba for many years. To date approximately 300 returned soldiers have taken advantage of this opportunity and are settled in two main groups, the first being north of Erickson, in townships 19 and 20, ranges 19 and 20, and township 19, range 18, and the second group being settled southwest of Grandview in townships 24 and 25, ranges 25, 26 and 27.

"Of the 300 settlers who have taken up land in this area, 87 have received financial assistance from the Board, and it is very pleasing to be able to report that, although most of these men have been on land for nearly five years, and have had to contend with the usual pioneer conditions, lack of roads, distance from market, etc., yet there has not, to date, been a single failure. This, no doubt, in some measure, has been due to the fact that before granting any applicant in this area financial assistance, the Board insisted that the applicant should first go on his property and make a start in the erection of log buildings, clearing land, etc., in order to demonstrate his sincerity and his ability to cope with pioneer conditions. Very satisfactory progress has been made by practically all these settlers, and they are now getting well on their feet. For example, in the settlement north of Erickson, there are 50 of these settlers who have loans from the Board aggregating \$74,141.00, the average loan being, therefore, \$1,483.00. These loans were spent in the purchase of horses, cattle, machinery, finishing material for buildings, etc. These 50 men have now a total area under cultivation of 3,416 acres, the average settler, therefore, having 68 acres of land in crop.

"This certainly represents a great deal more progress than in the average Dominion Land settlement. The financial aspect of this settlement is very good. The average settler has a good farm unit, varying from 160 to 320 acres, together with a comfortable set of buildings, some fencing, 68 acres under cultivation, and equipped with horses, cattle, pigs, machinery, etc., and against all this only an average indebtedness of \$1,483.00." (Quoted from the S.S.B. Report.)

#### *Rosburn Municipality*

Of the eight townships included in Rosburn municipality, more than four townships are settled solidly by Ruthenians. Of the remaining, less than four townships, 26 sections or more than two-thirds of a township are used for Indian Reserve number 62, known as Way-Way-See-Cappo. It must necessarily follow that the percentage of English-Canadian farmers in Rosburn municipality is small. This large percentage of Ruthenian farmers in proportion to Canadian is not a result of any spreading out process on the part of the Ruthenians. A line run diagonally from the northwest corner of the municipality to the southeast corner of the municipality would make a rough division between the Ruthenians and Anglo-Saxon settlements. The Ruthenian section is distinctly rougher in formation, is more broken by small lakes and sloughs and was originally much more heavily bushed than the southwest half of the municipality. This section was originally settled by Ruthenians, who took up land that had been avoided by the Anglo-Saxons.

With the exception of three or four parcels, all the vacant land in the Rosburn municipality is in the northeast half or in the Ruthenian settlement. As might be expected, the vacant land is the roughest, most broken and most heavily bushed parcels in a rough section. According to municipal officials and to resident farmers there is not one vacant quarter in this Ruthenian settlement that could not be classed as a number one or equal to the average of the district, an average which is by no means high. There are only two quarters of unused land in the whole municipality, outside of the Indian Reserve, which might be classed as desirable.



In the whole municipality there are some nine parcels, making altogether three and three-quarter sections of land, which might with considerable labor be made into fair farms.

The remaining parcels of unused land, about 20 sections in all, are distinctly third rate. The land itself, what there is of it, is of good quality, but, combined with distance from market, render this land useless at present to any but a farmer living on adjoining land in need of cheap pasture, hay or wood.

#### *Russell Municipality*

Russell municipality is divided into two quite distinct types of farm lands. The Assiniboine River here, as in Shellmouth municipality and in Ellice, forms the dividing line between black sandy to clay loam soil, east of the river, to sandy to gravelly soil, west of the river.

A little less than three-fourths of the total area of the municipality lies east of the Assiniboine River. This land is quite similar to the land found all the way from Minnedosa to Russell, along the C.P.R. The arable land is of first-class quality, a deep black loam on clay sub-soil. As elsewhere through this area, the land is rolling and is broken by sloughs. Small lakes and hay meadows also cut up the land. This characteristic varies from one quarter-section to the next and no general conclusion can be drawn as to the desirability of a given quarter of vacant land from the acreage of available arable land on an adjoining quarter. One general conclusion, however, may be drawn to which there is only the rarest exception. The vacant land in Russell municipality, as in Birtle, Shoal Lake, Strathclair and Harrison municipalities, is below the average in the matter of available land. The land is more broken by sloughs or more heavily covered by scrub or more sharply rolling; usually all three factors are combined to render the vacant land less desirable than the average. In other words, it is almost invariably the quantity of the arable land rather than its quality that constitutes the limiting factor as regards further settlement.

In the eastern three-quarters of Russell municipality many fine farms were seen and on the whole better than the average prosperity has been enjoyed. In the Seabright district and Craigie district particularly, prosperity has been enjoyed in the past at least. Good brick houses, large barns, well-fenced farms were common in these two districts and fairly common throughout this portion of the municipality. Here, as elsewhere, the personal factor has played a most prominent part. One farmer is all clear of encumbrance, with a good home and first-class equipment. His neighbor, with apparently equal opportunities in regard to land, price paid, etcetera, is so heavily mortgaged as to be in danger of losing his home entirely.

In this area the land adjoining the Assiniboine River is without exception useless except to adjacent farmers. The banks are high here and many deep ravines run in a westerly direction into the main stream.

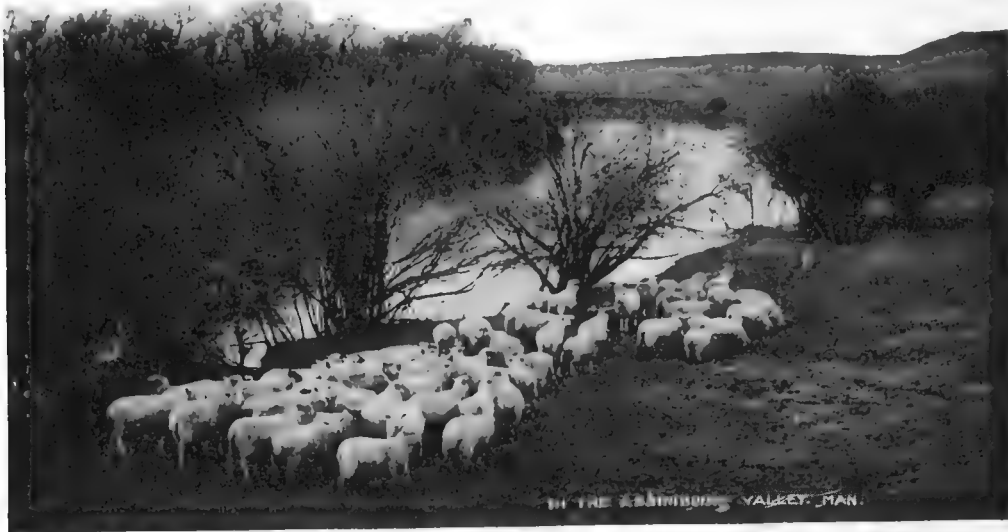
The land of chief interest for settlement purposes is contained in the parcel of land once held by the Barnardo Home, now owned by Mr. Wolfson, of Russell. This comprises sections 30, 20, 28 and W.  $\frac{1}{2}$  31 of township 20, range 28; sections 34, 35 and 36 of township 20, range 29; also about a section and a quarter of river bottom and hillside land in Shellmouth municipality.

Very complete and accurate reports have been made of this land, both to the Provincial Government and to the Soldiers' Settlement Board, with the object of interesting one or both in this estate for special settlement purposes. Owing to the nature of both land and buildings it is peculiarly and almost solely suited to some form of joint settlement scheme, such as that followed by the Doukhobors or Hutterians. The buildings, once used by the Barnardo Home, are far too large to be used economically by an individual farmer. The land, due to a large ravine running east and west, through sections 34, 35, 36 of township 20, range 29, seems best suited to a scheme for small holdings of arable land with rights in a common



pasture. This is especially true when joining with the desirability of making use of the present improvements designed for this kind of settlement.

A very complete scheme was worked out by the Russell Board of Trade for settlement of the land on small holdings by incoming British settlers. The prospect was to have been financed jointly by the British Government and our Provincial Government. The scheme itself was endorsed by the Salvation Army and was to have been operated by them. However, the latter organization has failed so far to co-operate in the plan.



Sheep prove profitable on the pasture lands of the River Valley.

Land west of the Assiniboine River in Russell municipality is of an entirely different character to that of the eastern three-quarters of the municipality. The land is distinctly lighter than east of the river. Some sections are very stony. In some parts gravelly ridges alternate with low-lying land, swampy in character, with bulrushes growing in place of grass.

Local opinion as to the value of the land varies considerably. Average opinion of farmers and municipal officials living east of the river is to the effect that the land is very poor, third or second-class at the very best. Corroborating this view is the action of the Hudson's Bay Company Land Department. This Company held a considerable portion of this land, some was sold in 1920 for \$20.00 per acre. This was reduced to \$17.50 until the summer of 1926 when it was offered at \$4.00 to \$5.00 per acre. On the basis of their offer the Hudson's Bay Company disputed the assessment of \$17.50 and went to court with the municipality. The assessment was sustained.

On the other hand, some of the most prosperous farmers in the district live in this area, west of the Assiniboine River. The Lees of Marchwell, Robinsons and Murdocks are all in first-class economic condition. Even the younger farmers who had bought land here in the last six or seven years were in circumstances favorably comparable with similar settlers east of the river.

The explanation of the difference of opinion probably lies in a different system of farming followed west of the river. Without exception the older farmers in the district who made good did so out of cattle. Distance from market in the early days, abundance of free pasture and wild hay right up to the present induced these



men to keep large herds. For the same reasons the younger farmers have been induced to go in more for milking. In this area there is plenty of land at low price admirably suited to those farmers who are disposed to keep stock and milk cows. The district does not lend itself to straight grain farming, and any considerable thickening up of the settlement would reduce the cheap or free pasture opportunities of the present settlers.

### *Birtle Municipality*

A feature of Birtle municipality is the number of creeks tributary to the Assiniboine River, chief of which is the Birdtail, running in a southwesterly direction, entering near the east portion of the municipality and passing out near the southwest corner. In addition, there is Minnewaska Creek, Snake Creek and Arrow River. The presence of these creeks is the chief cause of a good deal of the unused land in Birtle municipality, though not all. On the other hand, the hillsides adjacent to these creeks and the creek bottom have afforded cheap and excellent pasture to those farmers adjacent to them who have seized this opportunity to increase their earnings. With few exceptions farmers of this municipality who have made more than the average success have kept more than an average number of cattle.

The district is progressive and is making very definite efforts to improve agricultural conditions. A Seed Barley Association was formed in 1925 to encourage the growing of seed barley. A Sheep Breeders' Association was formed to encourage the raising of sheep. A previous census had shown that the sheep population of Birtle was one ewe per square mile. Since the formation of the Sheep Breeders' Association two car loads of sheep have been brought in.

Roads are good throughout the municipality. A first-class gravel road connects Binscarth, Foxwarren and Birtle. The roads from Foxwarren to Lazare and from Birtle to Solsgirth and most of the road from Birtle to Miniota are also gravelled. Birtle has a hospital and is well supplied with professional services of all kinds. Winter and summer sports, including baseball, tennis, football, golf, curling, skating, hockey and snowshoeing, are to be found.

The hope of properly located settlers seems to lie in a local committee which would have the same view toward local colonization as an enlightened government would have towards colonization in general, namely, that the important problem is that of getting good men into a position where they can make a good permanent living.

Such a committee was formed in the town of Birtle this summer. This committee was made up of the Reeves of the two municipalities, the Mayor of Birtle, the Secretaries of the two Agricultural Societies, Spalding and Miniota, Secretary Canadian Colonization Association for Miniota, and Mr. Pratt, Secretary Canadian Colonization Association for Birtle. The object of this committee is to do such work locally as the Unused Lands Survey is doing for the province; to advertise the municipalities of Miniota and Birtle, and to endeavor to satisfactorily place such settlers as desire to locate in these municipalities. It is significant that the objective this committee has in mind, at any rate as expressed by the secretary, Mr. Pratt, of Birtle, is the settlement of new-comers on lands now held by farmers holding too much land or even more particularly the replacement of poor farmers already near or complete bankrupts by better farmers. The fact that every township in the municipality affords striking examples of conspicuous success even in these poor years shows that the production and very probably the farm population could be doubled if the right people could be placed on the land.

Most of the unused land in this municipality was inspected and a favorable report received on the greater portion.



*Shoal Lake, Strathclair, Blanshard, Hamiota, Saskatchewan, Archie and Miniota*

In these municipalities the settlement of unused land does not present a very grave problem. For this reason the municipalities were not as intensively studied as were the northern municipalities, but the following general reports are submitted:

Only four per cent. of the land of Shoal Lake municipality is unused. About one-half may be termed medium land, well suited for mixed farming, the remainder is poorer than the average for the district and most of it is broken up; these latter lands can be best used as pasture.

Strathclair has practically no unused lands. About two sections of land are not a part of any farm and these are straight pasture propositions.

Blanshard municipality reported about four sections of unused lands. Inspection showed that most of these farms were rented and in use this year, but are now for sale. They are all good lands in a good district, and are reasonably priced at \$20.00 to \$25.00 per acre.

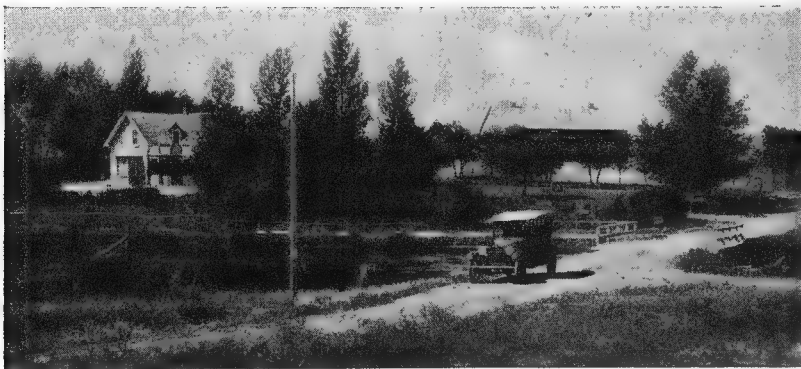
There are about eight sections of land unused in Hamiota municipality. The soil is a fertile sandy loam with splendid water, easy to procure. Most of these lands have been farmed, but for various reasons, in the last few years have either been rented to neighbors or unused. Most of them are reasonably priced with fair terms, and opportunities for 12 or 15 families with a little capital are available in this municipality.

The unused lands of Saskatchewan municipality practically all lie in the valley of the Little Saskatchewan River. These lands are practically of no value except as woodlots and pasture. A few parcels of land on the rolling plains above the valley are unused, and should present inducements for settlement as they are reasonably priced and have good soil.

The unused lands of Archie are mostly second-class lands or lands considerably poorer than the average lands in the northeast. They are badly broken up by the Assiniboine Valley and Hatonka Creek. Those in the southeast are on quite light sandy soil and would only be valuable as a distinctly mixed farming proposition. About three sections of land scattered in the central portion of the municipality should present a reasonable opportunity for settlement.

Miniota has considerable unused land in the lighter soils which lie west of the Assiniboine River. Much of the unused land is right in the valley of the Assiniboine and should be attached to some adjacent farm as pasture.

The lands on the sandy soil of the plain west of the river will not permit of continued grain farming. The land east of the river is splendid agricultural land



A fine farm home near Elkhorn.



and about 15 quarter-sections now unused and should provide a good chance for settlement by persons with a little capital. They are held at about \$25.00 an acre. In all there is room for considerable settlement in this district.

#### *Possibilities of Settlement*

Probably 400 families could be settled in district eleven in the immediate future. On the fringe of the mountains people with little capital and a desire and aptitude for pioneering can find reasonably excellent opportunities. In the more settled areas settlers with some capital can find many advantageous locations and with direction into sound farming practices would have every opportunity of making good.

#### *Population*

The early settlers in this area were principally from Ontario, but of later years immigrants from Central Europe have come into the district on the edge of the Riding Mountains. The entire fringe of the mountains may be said to be populated by these people. At present they constitute 22 per cent. of the population on the total area. The French and German population only constitute 2 per cent. each.

#### *Community Organization*

This district is especially rich in the development of its community life. Agricultural Societies and Women's Institutes have been particularly progressive and successful in their efforts to improve rural life.

The municipality of Miniota has the only Municipal School District, outside of suburban areas, in the prairie provinces. Other educational opportunities are equally progressive. The farmers of Erickson have pioneered in the co-operative elevator movement, while the Solsgirth farmers are leading the way in registered seed growing and co-operative marketing of same.



A Manitoba Farm Home.



# District Number Twelve

## *Dauphin*

This district lies directly north of the Riding Mountain Forest Reserve. To the east lies Lake Dauphin and Lake Winnipegosis, while in the north the Duck Mountains divide this area from the Swan River Valley.

On account of these outstanding natural features the area is characterized by rolling lands, many streams and much bush. The prominent beaches which run northwest through the eastern portion of this area are another distinctive feature, but constitute a soil problem of light lands and in many places swamps on either side of the ridges.

In all it is an area of many types and kinds of soil. The good soils and poor soils are very patchy and lands almost adjacent to splendid farming vicinities may be decidedly inferior in every way.

This district has great need of soil surveys and more intensive land classification. Unfortunately what little this survey could do was restricted to the municipalities of Mossey River, Ethelbert and Gilbert Plains. This is accounted for by the fact that the lists of unused lands did not come in from this area until quite late in the season. When the survey party started out they were only able to partially complete their work on account of the continued wet weather, which made roads impassable.

It is hoped that a survey for this district will be completed, as some of the municipalities in this area were amongst the first to see the need for such work.

In the meantime the following general information and municipality reports are submitted.

### *Trend of Agriculture*

There are more forage crops grown in this area than in any other of the survey districts. Five per cent. of the improved land is devoted to forage crops. This may be accounted for by the emphasis placed on livestock in this district. An instance of this is the splendid community effort of the Dauphin district farmers in breeding Guernsey cows. This enterprise has stimulated the livestock industry in the whole area. Besides this there are a number of prominent horse breeders of national reputation in this area. These factors all go to quicken a community interest in livestock and mixed farming generally.

Since 1921 the wheat acreage has been reduced about one-quarter. Barley has increased 132 per cent. and flax and fall rye about 800 per cent. each.

There are only 5 per cent. of the farmers known to be tenants, which is almost the lowest amount in the province. Only 38 per cent. of the total area is in occupied farms, but it must be remembered that 748,800 acres lie in the Duck Mountains, outside of organized territory. Of this occupied area only about 33 per cent. is improved, which leaves a large margin for possible increased production in this district.

The unused land in this area is 15.2 per cent. of the total area, and is slightly more than the amount of the total land under cultivation on occupied farms.

### *Population*

Only 46 per cent. of the people of this area are of British origin. Forty-four per cent. are from Central Europe and are mainly Ukrainians. The French and German settlers constitute together 5 per cent. of the population.

The most intensive Ukrainian settlement is found in the municipalities of Ethelbert and Mossey River and the northern portions of Dauphin and Gilbert Plains.



*Municipality of Gilbert Plains*

The municipality of Gilbert Plains lies in the north central part of western Manitoba and is bordered by the Riding Mountains on the south. A few miles to the northwest are the Duck Mountains and a little further to the east is Lake Dauphin. This municipality is 24 miles long and 14 miles wide and embraces 336 square miles.

Weather records from Dauphin, the nearest point to Gilbert Plains where weather data have been collected, shows that the average date for the last frost in spring has been June 3rd, and the average date for the first killing frost in the fall September 12th. These Dauphin records over a period of 15 years also show the mean average precipitation ranges from one-half an inch in April to three inches in July. The mean average of the whole year for the 15-year period is 17.45 inches.

The land in the municipality of Gilbert Plains rises to an elevation of 2,000 feet on the southwestern corner of the municipality and falls to 1,000 or 1,100 feet in the northeast. If a line were drawn indicating an elevation of 1,400 feet it would cut across the municipality near the village of Gilbert Plains in a northwest and southeast direction and would divide the municipality into two areas of approximately equal size. West and south of this line the land rises in undulating swells to the mountains. The soil in this area is glacial drift or boulder till with a khaki colored clay sub-soil. It is excellent farming land, except in the extreme south where the hilly character tends to make it unsuitable for cultivation. The Wilson River and its tributaries form a net-work of water courses that are scattered through this area.

East of the line showing the 1,400 feet elevation the soil has been modified by lake and river water and extensive deposits of water deposited sands are found in the centre of the municipality. Between these deposits of sand and the area of heavy soil a small strip of good farming land is found which may be described as sandy, clay loam. The water deposited sand is comparatively shallow and some good farms are located on it; most of it, however, is predisposed to drift and requires careful farming before it can be called good farming land. Several beach deposits of gravel run diagonally across the northeast portion of the municipality. Between the ridges some of the land is swampy and wet, while other parts are gravelly and stony. Some of the ridges are very well defined and make ideal roadways. These ridges, varying in width from 100 to 200 yards, are mostly fringed with poplar, scrub oak and aspen and are invariably covered with short grass. Much gravelly and swampy land is found along the northern edge of the municipality. The northwest corner contains land made up of a mixture of sandy clay and which includes ironstone shale.

The south and central part of the municipality, which has the heavier soil, was settled between 30 and 35 years ago by English-speaking people. Later a large number of Ukrainians settled in the northern part and today some townships in this section are almost entirely occupied by them. They look with yearning on the better land in the southern part of the municipality and a considerable number have purchased farms there. At present in the municipality as a whole nearly 50 per cent. of the farms are occupied by farmers of Slavic extraction. The balance of the farmers are Anglo-Saxon with an occasional one of French or German ancestry.

Very little of the unused lands of this municipality are in any way equal to the splendid farm holdings around the town of Gilbert Plains. To the north of the municipality the land is low and inclined to be swampy, with a heavy covering of bush. Possibly a third of those lands, if sold reasonably enough, would present an opportunity for settlers, who would be willing to pioneer. Ukrainians with



## Ownership of "Unused Land"

Table No. 9

Name of Municipality	Dominion Govt.	Soldier Sett. Board	Hudson's Bay Company	Municipality	Provincial Govt.	Private Owners				TOTAL
						Local	Mani- toban	Canadian	Foreign	
Shell River . . . . .	6,635	800	3,440	1,600	960	160	1,120	1,600	2,560	18,875
Hillsburg . . . . .	26,720		10,400				160			37,280
Grandview . . . . .	2,400	160	1,940	320		800	3,520	4,320	480	13,940
Gilbert Plains . . . . .	9,280	160	1,920	960	640	800	4,880	10,800	1,600	31,040
Dauphin . . . . .	15,040	3,360	3,680	2,720	1,280	2,640	22,240	9,120	4,960	65,040
Ochre River . . . . .	5,920	6,880	4,000	3,040	4,960		5,520	480	640	31,440
Ethelbert . . . . .	160		9,280	3,840		160	4,000	480	640	18,560
Mossy River . . . . .	113,040	3,200	10,160			2,240	9,005	1,440	960	147,725
Unorganized Area . . . . .	55,840		1,760		7,680					57,600
TOTAL UNUSED	235,035 55.76%	14,560 3.45%	46,580 11.05%	12,480 2.96%	15,520 3.68%	6,800 1.61%	50,445 11.97%	28,240 6.70%	11,840 2.82%	421,500





Roblin Collegiate Institute (upper).  
Roblin Elementary School (lower).

characteristic energy and frugality have made good all through this area. Much of the unused lands are similar to what the Ukrainian settlers are at present operating.

The best use for these lands would be through pricing them low enough to permit an extension of the Ukrainian settlement. Absentee owners who control considerable of this land should realize this situation.

The lands along the Forest Reserve to the south are heavily bushed and hilly. No large areas can be broken up for crops, but if the soil is good and with considerable livestock a comfortable living could be made. Here again considerable time and effort must be displayed and owners of these lands must consider these facts in setting terms on their lands.



*Mossey River Municipality*

Hardly half of the total area of Mossey River municipality is in occupied farms. The principal settlement is a northward growth from Sifton and lies most thickly along the east side of the Mossey River and on both banks of the Fork and Fishing Rivers, which flow from the west, joining the Mossey in the south of the municipality.

This area constitutes an excellent mixed farming district, with the farms along the river banks being favored with a sandy loam soil, reasonably free from stones, which produce excellent cereal crops. The settlement north of Fork River town, except along the river, is on lighter land, mixed with considerable stone and with poor drainage. A stretch of low land poorly drained and very alkaline runs from Sagemace Bay south to township 20 in range 18 west.

The two large areas of unused Dominion lands are in the northwest and west of the municipality. The area to the west, which lies between Lake Dauphin and Lake Winnipegosis, presents poor possibilities for settlement. It is poorly drained, stony and in the north traversed by limestone ridges, which are covered with a very thin surface layer of stony soil.

This solid block of land in the northeast is also distinctly sub-marginal land. The settlement immediately adjacent to this area is very backward. Many abandoned homesteads are found and land still open for settlement is either low and alkali or quite stony. The large block of land itself consisted of stony ridges and spruce swamps. There has been practically no settlement in this area, although the Ukrainians have been settled in the neighborhood for many years. This would indicate that they have regarded it as unfit for any agricultural purpose at present.

*Ethelbert Municipality*

The municipality of Ethelbert contains 117 quarter-sections of unused lands. These quarters are fairly evenly scattered over the municipality and in the most part may be said to be suitable for settlers of the right type.

The land lying east of Ethelbert ridge is stony and the soil is shallow and light. There is good drainage in this country, however, and practically all of this is suitable for dairying. A farmer could use 30 to 40 acres of coarse grains and with applications of barnyard manure considerably increase and maintain yields and fertility. The trouble in this district has been that settlers have moved in and brought grain farming equipment and made other expenditures unsuited to the nature of the soil. These settlers have either failed or have made little progress. On the other hand, there are many settlers east of the ridge who by means of cattle, hogs and poultry have established successful farms.

West of the ridge lies one of the best mixed farming districts in Manitoba. The soil is deep sandy loam, fairly free from stone and well drained. This soil grows splendid grain crops. The wheat yield is 25 bushels to the acre this year<sup>1</sup> and never once in the history of the district has there been a failure.

These farms have all been reclaimed from the bush and their present attractive and prosperous appearance is the result of years of unstinted labor. The district is mainly populated by Ukrainians.

The unused lands in this western area should present attractive inducements to settlement. They have been abandoned mostly on account of poor farming methods. The land can be procured on easy terms and a good farmer with average returns could be free from debt in four or five years. These lands present one of the best opportunities in Manitoba.



### *Dauphin*

The unused lands of Dauphin municipality lie in three districts. A large block of land lies unused in the southeast immediately adjacent to Ochre River municipality. Although this land was not inspected by the field men of this survey, two facts of importance are known of it. In the first place the large percentage of it is owned by absentee owners, many of whom live in foreign countries. Secondly, local opinion of this land rates it as poor or third-class land. Such a large area of land should, however, be carefully surveyed as there must be some economic use to which it can be put. A proper appraisal of its agricultural value might assist in transferring this land to resident ownership for productive purposes.

Five miles east of the town of Dauphin lies an area of land about five miles wide and seven miles long which is largely out of use. A preliminary traverse through these lands indicate that it is poorly drained, and several abandoned farmsteads indicate the presence of a real problem. Here again was found a large percentage of absentee ownership. Whether or not this land can be made productive by drainage should constitute a pressing need for a detailed soil survey in this area.

The proximity of these two large areas of unused lands adjacent to such a splendid agricultural district as that which surrounds the town of Dauphin, and a further area of unused lands which is found south of the town of Sifton, would indicate that there is a soil problem of considerable magnitude in this municipality. Only a detailed survey such as has been made in other districts this year will indicate the agricultural possibilities of these lands.

The whole district of Dauphin presents a splendid opportunity for directed community development. There is a fine community spirit here awaiting a programme based on accurate knowledge of the soil and economic conditions of the district. The presence of an almost solid Ukrainian settlement to the north is a challenge to a real development programme which will strike out new ground in combining diverse racial objectives into one unified Canadian ideal.

### *Opportunities for Settlement*

In the three municipalities surveyed there is room for at least 100 families. In the most cases these lands are in the midst of Ukrainian settlement, so would be best settled by persons from Central Europe. In practically all cases most reasonable prices and terms are offered. Lands still open for homestead are distinctly sub-marginal and should remain out of use for some years.



Good land abandoned because of poor drainage.



# District Number Thirteen

## *Swan River Valley*

District Thirteen of this survey is popularly and widely known as the Swan River Valley. This district extends from the municipality of Ethelbert on the south to township 45 on the north. On the east it is bounded by Lake Winnipegosis and on the west by the Province of Saskatchewan. There are 1,313,280 acres in the unorganized territory of the area, about one-half of which is taken up by the Riding Mountain and Porcupine Forest Reserves.

There are 2,016,661 acres in this area, of which 31.5 per cent. is in occupied farms, but only 6.2 per cent. of the total acreage is under cultivation. The improved land is thus only about one-fifth of the total lands occupied and this may be attributed largely to the fact that the country is relatively new and, excepting the valley itself above Swan River town, was almost solid bush when the first settlers came in. Only 2 per cent. of the unused lands were once farmed, while the number of rented farms is the lowest in the province, being only 4 per cent.

Settlement dates from about 1900, and when one visits this area and sees the beautiful homes and prosperous farms he is amazed at the progress revealed. There are a number of men who came into this district when it was first opened, some with very little capital, but by hard work and thrift have established good homes and are today financially independent.

Thirty records were taken from resident farmers to ascertain the progress made since settlement. Those who homesteaded or purchased land before the war are uniformly well off. Most of them state they had either nothing or a few hundred dollars to start work. Their present worth ranges from having their farms clear of debt to those who have their farms and considerable sums in the bank.

Records taken from farmers who settled after the war indicate that most are as yet struggling to free their farms from encumbrances, but all are satisfied with the progress they are making, although stating that for a few years it has been hard sledding.

In the municipalities of Minitonas and Swan River 31 per cent. of the unused lands are owned by the Dominion Government. The greater portion of the remainder is owned by the Hudson's Bay Company and persons resident in Manitoba.

### *Agricultural Practices*

Swan River Valley is the largest area of nearly virgin soil of excellent quality in Manitoba. As a result the yields and quality of crops have been excellent. Rust and insect pests have as yet not proven a great problem. Couch grass has, however, become a serious menace, but within the past few years superior farming practices have been developed which are successfully combating this weed.

Since 1921 the wheat acreage has decreased 19 per cent., while oats and barley have increased 33 and 43 per cent. respectively. Fall rye is meeting with considerable favor and has in the last five years increased 430 per cent.

From the standpoint of making a home, an important consideration in farming, this district presents one of the most delightful prospects in Manitoba. To the north lie the Porcupine Hills, and to the west the Great Thunder Hill, while to the south lie the Duck Mountains. Delightful streams pour clear and fresh from these heights to charming lakes, which provide opportunity for relaxation on summer holidays. The valley is fringed with fir clad slopes, which in winter lend not only a pleasing contrast in green but give shelter from driving winds.



The following crops and crop rotations are suggested for this district:

*Agricultural Zone---Swan River Valley*

Rotations		Grain Crops		Hay and Pasture	Intertilled Crops
"A"	"B"	Crop	Var.	Crop Var.	Crop Var.
1. Grain	Grass and alfalfa for four years	Barley: O.A.C. 21		Grasses:	Sunflowers:
2. Grain		Oats: Gold Rain		Meadow fescue	Mammoth Russ.
3. Feed grain and seed timothy, alsike and red clover	1. Grain	Wheat: Ruby		Timothy	Corn:
	2. Grain	Garnet		Clovers:	N.W. Dent
	3. Grain and seed down timothy	Marquis		Alfalfa	Man. Flint
4. Hay	4. Hay and break	Rye:		Red clover	Roots:
5. Pasture and break		Flax: Premost		Alsike	Turnips
6. Roots and sun-flowers or fallow		Peas: Arthur			Mangels

*Population*

Persons of Anglo-Saxon origin constitute about 37 per cent. of the population of this area. They predominate in the municipalities of Swan River and Minitonas. Central Europeans predominate in the unorganized territory, which is settled along the railroads and make up 14 per cent. of the total population. The greater proportion of the population of the unorganized area is made up of Treaty-Indians who live in the reserves near Swan Lake. A few French and Belgians generally scattered through the district constitute 7 per cent. of the population.

*The Unorganized Territory*

Apart from the lands lying in the Birch River district north of the municipality of Minitonas the unused lands in the unorganized portion of district thirteen are unsuited for agricultural development. The lands lying immediately west of the C.N.R., running from Ethelbert to Minitonas and east to Lake Winnipegosis, are distinctly inferior in every respect. For the most part they are either very stony or poorly drained, and with considerable muskeg. The best of these lands are broken by ridges. They are very light and sandy and will only support settlers desirous of keeping a few cows and chickens incidental to working in the bush.

The report of the unused lands in Swan River, Minitonas and the district of Birch River are given verbatim from the investigations made by C. H. Hammar, assisted by W. M. Stewart.

*Swan River and Minitonas Municipalities*

In the latitude of 52 degrees north, the Manitoba Escarpment, near the Duck Mountains, swings at an angle of about 90 degrees from a course a bit west of north to one just a bit south of west and continuing thus across the borderline between Manitoba and Saskatchewan. To the north the escarpment again appears in the Porcupine Mountains, which enters the Province of Manitoba with a course somewhat north of east, but takes a direction almost due north upon reaching some 20 miles east into the province.

In the gap in the escarpment thus formed lie the valleys of the Swan and Big Woody Rivers. The valley is rather narrow, being in places little more than 12 miles in width and nowhere in Manitoba attaining a 20-mile stretch. Both Swan River and Minitonas municipalities lie almost wholly within the valley.

Contour lines and levels of the Dominion Survey show the valley to have been entirely within the area covered by glacial Lake Agassiz during its higher stages



and a number of well-defined beaches in several parts of both municipalities substantiate this, as does the eroded glacial till soil, which persists in the region, save where the alluvial material displaces it.

The most remarkable characteristic of the soils of these municipalities, however, is not that induced by lake action, but rather that brought about by the deposits of the Swan and Big Woody Rivers and their numerous tributaries. In fact the entire district can be referred to not incorrectly as an alluvial plain.

Some idea of the size of the rivers which were responsible for the deposits of clays, silts and sands, and even at times gravel, that go to make up so large a percentage of the soils of the region can be had by noting the size of the beds they have cut for themselves in the plains through which they flow. Thus, the Swan River at the town of Swan River has a bed capable of carrying hundreds of times the amount of water that now flows through it.



Garden truck does well in Swan River. Note virgin land in background

On the whole the rate of flow of the water during the time the soils were being deposited was rather slow and the waters themselves quite deep. Hence the soils are comparatively fine in texture, the usual technical description being a silty loam, or, as the farmers would say, "a clay soil." In a few places the rivers were evidently very rapid, for very coarse gravelly soils have been formed, though even these have been covered by a layer of finer soil of later and slower flow.

Only small areas of these last mentioned types of soil are to be found, and, generally speaking, soil conditions in the valley are nearly ideal.

In the first place, the soils have been washed free from injurious salts during their deposition and practically no alkali spots were seen by the soils party during its entire reconnaissance of the area. Secondly, there are no stones or practically none in the areas of river deposited soils, which, as has been said, cover nearly the whole area. Third, the soils have been deposited in flowing rather than still water and hence have been spared that extreme fineness of texture possessed by the lacustral or lake laid clays, which have been given the name of "gumbo." The less fine river soils are more friable and easily worked or tilled and have far better internal aeration and drainage, thus warming up more quickly in the spring and giving added length to the growing season. Fourth, these soils are, save for the small areas mentioned heretofore, fine enough in texture to have excellent moisture-holding capacity and because of this manner of deposition have a remarkable fertility. In addition, the soils are abundantly supplied with nitrogen as indicated by the black surface layer extending on an average well below plow depth over the greater part of the area.



Unlike so much of the bed of Glacial Lake Agassiz, surface drainage conditions throughout all save the northeastern parts of the area, are excellent. The rivers here, in direct contrast to those of the Glenella and Big Grass Marsh areas, have cut themselves wide and deep valleys, and tributary creeks, though often small, have well eroded channels, and though the general slope of the land is very gentle, distances between rivers and creeks are so small that surface water gives little trouble. In the northeastern part of the municipality of Minitonas, a considerable distance from the Manitoba Escarpment, and at a point where the gap between the Duck and Porcupine Mountains merges into the level plain of the bed of Lake Agassiz, drainage is less adequate and extensive peat swamps occur.

These peat swamps and certain rough and hilly areas on the edges of the mountains and some areas of stony and gravelly soils are the only non-agricultural lands of the two municipalities. Inasmuch as both peat swamps and mountain lands support excellent stands of much needed timber, the disadvantages of the non-agricultural quality of these soils is only slight, if indeed it exists. The writer saw excellent saw timber and pulpwood being taken from the peat swamps and both spruce and poplar do excellently on the hills. There should be no hurry whatever to bring such soils under cultivation. In fact it is doubtful if they do not attain their highest usefulness in producing timber.



Alsike clover grows luxuriantly in Swan River Valley

While the alluvial or river soils are dominant within the valley, there exists, on the higher levels above the reaches of stream action, a soil that is common throughout the lake bed area in Manitoba, namely, an eroded till soil. This soil has been described in detail in the Glenella report. It was deposited during the existence of Lake Agassiz and hence laid down in water. Almost subsequent to its deposit it has been eroded by wave action of these same waters. As a consequence over the top of the really good sub-soil of this soil type there is a layer of boulder and gravel varying from an inch to a foot in thickness. Usually over this gravel and cobble layer has been spread a layer of wind-blown soil of excellent quality, but this layer is thin and the gravel between it and the sub-soil insulate the two layers of soils and check the upward movement of water. Such soils are subject to drought and are very stony. Though they are often farmed they are the poorest soils of the entire area.

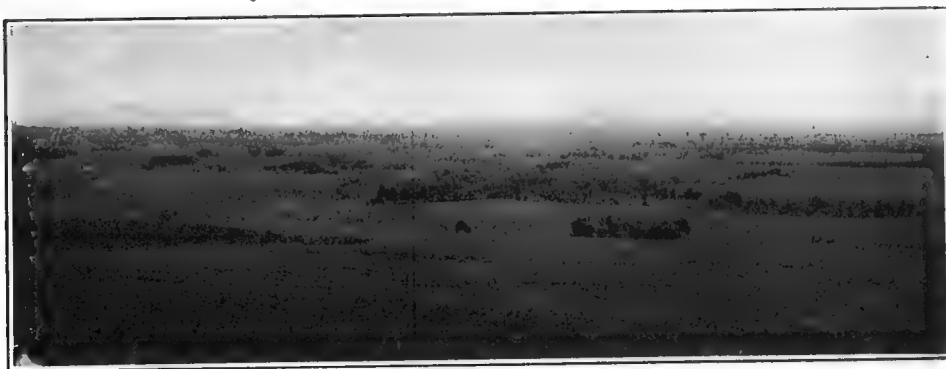
Another type of soil showing the droughty qualities of the last, but having few stones that are deposited by really torrential rivers. They occur usually near the Manitoba Escarpment and are restricted in area. These also are farmed and not seldom support excellent farms. A saving feature possessed by these soils is their covering of finer texture soil laid down during a period of slower flow of the water.



The soils of the hills or mountains are quite different in character from the foregoing. In the first place, they are likely to be excessively drained, due to their bold relief, most of the topography being rolling or hilly. Second, stones occur in considerable numbers, though not so numerous as to prohibit cultivation. Third, the soils are forest soils and hence do not possess the abundant supply of nitrogen that is common to the prairie soils of the rest of the region.

However, they are very good texturally, being dominantly a silty clay loam and are at present farmed very successfully. There is little doubt that a quarter or half a century will find all these hill lands in use, either as pasture or under the plow, but there should be no attempt to rush their use, for they support an excellent and needed growth of timber.

The foregoing constitute the chief types of soils encountered in the municipalities, but sub-classes under these main types, differing only in texture, are of course numerous and important. As an instance, some of the river or alluvial soils are very fine or fine sandy loams, and in places even coarser. So loose has this river sand been at times that it has been wind-heaped or duned, a notable example of which occurs just south of the road a few miles east of Swan River, and again south of Birch River just outside the area occupied by the two municipalities.



View from Thunder Hill, Swan River Valley.

Of the unused lands in the two municipalities it can be said that the majority are not at present in farms, because of the newness of the country, or because of the lack of facilities. No area encountered so far in the survey gave more promise from a purely soils point of view than this valley of alluvial soils. Some of the unoccupied land in the southern parts of both municipalities was too rocky and hilly to be taken up at present and some of the gravelly and boulder strewn tills were still out of use. These will in time be utilized, though, as before stated, they are the culls from the more excellent soils and their being brought into use should in no wise be hastened.

A special block of unused land in the northeastern three townships of Minitonas is worthy of special mention. This lies wholly east of the Swan River, which is bridged in only one place in this region, that at a considerable distance from the block of unused land. At the cost of considerable effort a traverse was made into this territory. The soils are the usual alluvial deposits for some two or three miles east of the Swan River, yielding to an eroded till with only slight river deposits farther east. On the whole the soils are excellent and the district, which is open for homestead, well worthy of settlement, when bridges across the Swan River shorten the distance to market. The timber growth is both large and dense, however, and the cost of clearing greater per acre than the price per acre of improved farm lands with almost equally good soils at present. If the history of land values can be trusted to repeat itself, these lands will soon be worth settling on as homesteads.





The spring tooth harrow combats couch grass successfully.

When a distance of as great as from four to five miles east of Swan River is attained, the drainage channels are no longer sufficiently developed to take care of the surface water and the country is swampy. Large muskeg and spruce swamps occur. These should be left for decades to produce their natural product, lumber and pulpwood. Their presence is

a great advantage to the settler farther west, who secures both lumber and logs for his buildings.

### *The Unorganized Territory North of the Municipality of Minitonas*

North of the municipalities of Swan River and Minitonas is a comparatively narrow strip of country where soil conditions are very similar to those in these two municipalities. Streams with their headwaters in the Porcupine Mountains, flowing through the district, have, during overflow stages, been responsible for the majority of the soils.

On entering this region from the south an area of very sandy soils are first encountered, some of them duned or wind-heaped river sand and others apparently the product of lake water erosion of glacial till. These last are differentiated from the first by the presence of stone, no stone whatever being found in the first mentioned type. From the limited inspection given the area by the soils party it seemed that only within short distances from the mountains were these two soil types encountered.

When the town of Birch River was reached it was found possible to strike eastward into the plains away from the mountains and into such farming sections as have been developed in the district. The sands, coarser sandy soils over which the road from the south had been routed and upon which Birch River was located, gave way to the east very quickly to heavier alluvial soils, heavier than any that had been discovered during the survey of Swan River and Minitonas and running almost to a gumbo clay.

Topographically the land was very flat and save for the presence of many stream channels, the drainage would have been very poor. A remarkably heavy growth of both black and white poplar or aspen was growing on these soils, proclaiming their abundant productiveness, and the crops on the small cleared spaces of the settlers were exceptional. Where fire or settlers' labor had made open spaces in the forest, strong growths of native grasses occurred, use of which for hay and pasture was being made. The excellent condition of the cattle seen along the road gave mute evidence of the nutritive qualities of the grasses.

On penetrating farther southward and eastward into the territory, the soils become somewhat lighter, reaching a silt loam and sandy loam texture, but still excellent in quality and still farmed. In fact settlers preferred these lighter soils as being far less difficult to clear and rather more responsive to cultivation than the heavier gumbo soils farther north. The timber growths on these lighter soils were less of an obstacle to clearing, and larger clearings had consequently been opened up.

The lighter soils persisted to the banks of the Big Woody, which marked the eastern limits of the soils reconnaissance. Indeed on the southern edge of the traverse an area of fine sand, so loose as to have been heaped into small dunes by the winds, was encountered.



All the soils were what are known as prairie soils and had a black surface layer with abundant supplies of nitrogen despite their present strong growth of forest. No alkali was discovered and from the nature of their origin as river deposits no stones were found.



Virgin land, Swan River Valley.

On the whole this territory is excellent and promising as a future wheat-raising section. Clearing difficulties are serious, for the timber is large and heavy, but at least part of the clearing expenses can be met by the sale of logs, pulpwood and cordwood, to say nothing of the advantage of having firewood and building timber immediately at hand. The soils themselves are so excellent as to be well worth bringing under cultivation immediately. They are nearly identical with the soils of the Red River Valley, which were opened up with such remarkable rapidity, and settlement is spreading northward along the railroad from the settlement. When one sees the remarkable advance made in the section to the south, from a dense forest to an advanced farming section in a quarter of a century, the outlook for the lands about Birch River becomes very bright indeed.

As a word of caution, however, it should be said that no gold mine awaits the settler here and no huge fortune is to be gathered in ten years. Clearing forest soils is far different and much slower than turning over the grass of the prairie one year to crop it the next. The country is promising rather to the settler who wishes to make a home, who is willing to rough it a bit, and to forego many of the customary comforts of the age, and who above all is willing for a considerable period to glean his living from his garden and his livestock, for cash income from forest and cut-over farms are inevitably small for some years.

In addition, there is a responsibility of the government to do its utmost to keep settlement compact. Perhaps more high taxes, discontent and failure are caused in Manitoba by the straggling nature of pioneer settlements than any other single cause.

#### *Possibilities of Settlement*

As indicated in the foregoing, there is considerable opportunity for settlement in this district. Settlers willing to pioneer, as the now prosperous farmers in this area did some years ago, will find some of these unused lands attractive. There are also splendid opportunities for settlers with a little capital who can purchase land in the more thickly settled areas at a reasonable price and terms. At least one hundred settlers with some cash can find immediate settlement on such lands. Besides these settlers the number going into the newer pioneer districts should be considerable, but the number will depend on economic conditions, which are favorable enough to permit of an extension on to lands which demand considerable effort in clearing and in some cases drainage.



















UNIVERSITY OF MANITOBA LIBRARIES



3 2212 00555 0374